MENTAL HEALTH SERVICE NORMS IN SOUTH AFRICA

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Dedicated to Judi and Vernon Lund

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Abstract

Title: Mental health service norms in South Africa.
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This thesis includes four main aspects. Firstly, a situation analysis was conducted of current national public sector mental health services in South Africa, using nine service indicators. A questionnaire was distributed to provincial mental health service coordinators, and followed up with workshops conducted in each province, attended by a variety of stakeholders. The results show that mental health services in South Africa are generally under-resourced, with marked variations in resource levels and service utilisation between provinces. In keeping with historical legacies, mental health care continues to be centralised in large psychiatric institutions, with little evidence of the development of community mental health services. Secondly, a model was developed for estimating the mental health service needs of people with severe psychiatric conditions in a local South African population. Previous research in general health service planning and the methodology of a WHO model were adapted to South African mental health variables to develop the model. The model provides an approach that is flexible, transparent, specific and includes a range of services. Thirdly, a set of service norms was proposed for each of the nine service indicators, informed by data from the situation analysis, the model, consultation with key stakeholders and a systematic review of the literature. The norms proposals express mental health service needs in terms of quantifiable service resource and utilisation levels. Traditionally, a "norms" approach has been criticised for being rigid, prescriptive and not taking account of local service realities. This thesis is an attempt to reform the concept of norms, in a way that allows planners both to establish rational guidelines for mental health service delivery, which are essential in the post-apartheid era, and to do so flexibly, in the light of various sources of information. In broad terms, the study recommends the redirecting of current mental health resources from hospital- to community-based care and greater equity in the distribution of resources and the accessibility of services. Fourthly, a practical user-friendly planning manual was developed, using the situation analysis, model and norms to provide guidelines for the planning of mental health services by local and provincial planners.

Executive summary

This thesis includes four main aspects.

1. Service indicators

Firstly, a situation analysis was conducted of current national public sector mental health services in South Africa, using nine input and process service indicators: bed/population ratios, staff/population ratios, staff/patient ratios, community/hospital ratios, bed occupancy rates, admission rates, length of admission, readmission rates and default rates. A questionnaire was distributed to provincial mental health service coordinators, requesting the data necessary to report on each indicator. The questionnaire was followed up with workshops conducted in each province, attended by provincial mental health coordinators, service managers, clinicians, academics and other stakeholders.

The results indicate a national acute bed/population ratio of 13 (provincial range: 6-18) per 100 000 and a medium-long stay bed/population ratio of 35 (provincial range: 0-83) per 100 000. There are 19.5 mental health staff per 100 000 population, (provincial range: 5.7-31.6). National staff/bed and staff/daily patient visits (DPV) ratios are 0.3 (0.22-0.89) and 0.6 (provincial range: 0.1-4.0) respectively. Community/hospital ratios indicate that on average, 25% of public sector staff are located in community settings in South Africa. On average, 66% of patient contacts with mental health services occur through ambulatory care services. Total national bed occupancy rates of 83% (provincial range: 63-109%) were reported. Annual national admission rates were reported to be 150 per 100 000 (provincial range: 33-300). There is a national average length of stay of 219 days in psychiatric hospitals (provincial range: 60-3650), 11 days in general regional hospitals (provincial range: 2-28), and 7 days in district hospitals (provincial range: 2-21). Readmission rates were only available from West End hospital in the Northern Cape and were reported to be 33% per annum. A national default rate of 11% (provincial range: 6-21%) was reported.

The situation analysis found that mental health services in South Africa are generally under-resourced in relation to most developed countries and some developing countries. There are marked variations in resource levels and service utilisation between provinces. In keeping with historical legacies, mental health care continues to be centralised in large psychiatric institutions, with little evidence of the development of community mental health services.

There is some evidence of unmet need for mental health services, with low levels of community service utilisation corresponding with low hospital admission rates. The precise nature of the present unmet need requires further research. The results also indicate the inadequacy of current mental health service information systems in South Africa. This is important in the light of several identifiable areas where the data reported in this study appeared to be inaccurate. There is a particular need to develop ways of monitoring mental health care in the context of integrated general health services, for example the number of full-time equivalent (FTE) mental health staff working in primary health care settings. This is important in the context of policy proposals to downscale psychiatric institutions and integrate mental health into general health care. Information systems are an essential tool for monitoring this process and ensuring that service targets are achieved.

2. Model

Secondly, a model was developed for estimating the mental health service needs of people with severe psychiatric conditions in a local population of 100 000 people, and the resources required to provide mental health care to address those needs. Previous research in general health service planning and the methodology of a World Health Organisation (WHO) model were adapted to South African mental health variables to develop the model. The model provides a methodology for estimating the mental health service needs of a local South African population, with key features being its flexibility, its transparency, its applicability to the planning of both community and hospital-based care, and its specificity.

The model produced a set of recommendations for mental health service utilisation rates, bed numbers and staff to care for people with severe psychiatric conditions in a local South African population of 100 000 people. To summarise, at 100% coverage, these are 87 daily patient visits (DPV); 28 acute and 10 medium-long stay beds; and 35.2 FTE mental health staff (including 25.1 nurses, 0.6 OTs, 1.9 OTAs, 2.2 social workers, 1.2 clinical psychologists, 1.55 psychiatrists, 1.95 registrars, 0.5 educational and information officers, and 0.2 quality assurance officers).

The pattern and level of existing services in South Africa, as reported by the service indicators, are different to those recommended by the model. There are presently fewer acute beds than those recommended by the model. However, there are considerably more long stay beds with gross maldistribution of resources between provinces. The findings of the model indicate the need for a shift away from an institutionally based custodial pattern of care, to community-based care. This implies an emphasis on the short-term treatment of patients in inpatient settings and the concerted management of patients in the community.

3. Norms

Thirdly, a set of service norms was proposed for each of the nine service indicators on the basis of the data from the indicators of existing services, the model, consultation with key stakeholders in provincial and national mental health services and a systematic review of the literature.

The norms proposals express mental health service needs in terms of quantifiable service resource and utilisation levels. In doing so, this study makes explicit what is frequently hidden in mental health service literature, namely the assumptions and values on which planning is based. Traditionally, a "norms" approach has been criticised for being a rigid, prescriptive approach, which does not take into account local service realities. This thesis is an attempt to reform the concept of norms, in a way that allows planners both to establish guidelines for mental health service delivery, and to do so flexibly, in the light of various sources of information. These include epidemiological approaches (in the model); a review of current supply (from the indicators of current resources); a review of current demand (from the indicators

of current service utilisation); and consultation (through the provincial workshops). It is argued that guidelines are essential in the post-apartheid era, particularly in the light of past racial inequities and injustices. The thesis presents less a set of rigid norms, than a methodology for developing norms, and for planning mental health services in a coherent, rational and transparent manner.

The problem of developing guidelines which are flexible and can address the diversity of resource levels in current provincial service provision in South Africa is addressed by developing two sets of norms, each calculated according to different methodologies: baseline norms (based on the current national service indicators, with the goal of establishing national equity); and target norms (based on the estimation of service need from the model, with the goal of meeting mental health needs).

The proposed bed/population norms are 19 total beds per 100 000 population (including 13 acute, 3 medium-long stay and 3 community residential beds) at baseline level; and 58 total beds per 100 000 population (including 28 acute, 10 medium-long stay and 20 community residential beds) at target level. The proposed staff/population norms are 20.7 total FTE staff per 100 000 population at baseline level; and 35.2 total FTE staff per 100 000 population at target level. The proposed staff/bed norm is 0.36 at baseline level and 0.56 at target level. The proposed staff/DPV norms are 0.32 at baseline level and 0.93 at target level. For staff, according to one definition of "community" and "hospital", the proposed baseline community/hospital norms are 25% for those provinces with low levels of community staffing, and 55% for those provinces with high levels of community staffing. For this definition, the proposed target norm was 40%, implying that as a target, 40% of mental health staff should be based in community settings in South Africa. The proposed community/hospital norms for patients are 66% at baseline level and 92% at target level. This implies that at target level, 92% of patient contacts with mental health services should be in the form of outpatient contacts and only 8% in the form of hospital admissions.

The proposed baseline bed occupancy norms are 83% for acute and medium-long stay facilities. The proposed target norms are 85% for acute facilities and 95% for medium-long stay facilities. The proposed admission rate norms are 150 (baseline)

and 180 (target) annual admissions per 100 000 population. At baseline level, the proposed length of admission norms in days are: 14 (acute psychiatric hospitals), 14 (acute psychiatric wards in general hospitals), 5 (acute general wards in hospitals), and 3 (acute wards in district hospitals). At target level, the proposed length of admission norms in days are: 19 (acute psychiatric hospitals), 180 (medium-long stay psychiatric hospitals), 19 (acute psychiatric wards in general hospitals), 8 (acute general wards in hospitals), and 5 (acute wards in district hospitals). At baseline level, the proposed readmission rate norms are 15% within 1 month, 35% within 6 months, and 40% within 1 year. At target level, the proposed readmission rate norms are 10% within 1 month, 25% within 6 months, and 30% within 1 year. The proposed default rate norms are 11% (baseline) and 8% (target).

In broad terms, the study recommends the redirecting of current mental health resources from hospital- to community-based care and the development of greater equity in the distribution of resources and the accessibility of services. This includes an increase in the number of acute psychiatric beds in general hospitals; development of community-based medium-long stay care; redistribution of staff from hospital to community services, particularly in rural areas; and the development of information systems to monitor the transitions to community-based care.

4. Manual

Fourthly, a practical user-friendly planning manual was developed to provide guidelines for the planning of mental health services by local and provincial mental health service planners and managers. The manual was developed in consultation with the national mental health directorate and provincial mental health coordinators. The format and layout of the manual were considered by mental health coordinators and local managers to be an important element of the final product. By providing material in a way that was accessible and user-friendly, it was hoped that this would contribute to the use and implementation of the norms in local service planning. To assist with this, the manual includes algorithms and sections where local planners can enter their own data, and then calculate their own local service targets.

Contributions

The major contributions of this study are that it provides new data on national and provincial mental health services in South Africa; it has developed a model for estimating mental health service needs in South Africa; it has developed both a set of norms proposals, and a method for developing norms for mental health services; it provides a set of planning tools which can be used at national, provincial and local levels; and it provides a comprehensive approach to planning services, using a consistent methodology and set of service assumptions throughout.

Limitations

The limitations of the study are that it does not include a range of mental health problems, including learning disabilities, substance misuse, less severe psychiatric conditions, and services specifically for children, adolescents and the elderly; it does not include private sector services; it focuses on input and process indicators, to the exclusion of outcome indicators; there were methodological limitations to the questionnaire; data reported by provincial services was occasionally of poor quality; analysis of the data focused on inter-provincial comparisons, and intra-provincial analysis was not possible; the conclusions of the model are dependent on the assumptions on which modelling is based; South African epidemiological data was not available for need assessment in the model; the consultation process during the study could have been more extensive; financial planning was not explicitly addressed; cultural issues were not directly considered; and attention needs to be paid to the context within which norms recommendations are made, including qualitative aspects.

Areas for further research and service development

In the light of these limitations, the study makes several recommendations for areas of further research. These include the development of outcome indicators; reporting and analysis of intra-provincial data; development of costing methodologies in the model;

development of need assessment methodologies in the model; evaluation of the implementation of the norms proposals in this study; analysis of mental health service organisation within provincial health department administrations; the development of mental health information systems; studies of the quality of care; expansion of the norms methodology to groups excluded from this study; the development of planning methodologies for health promotion and prevention of disorders; examination of private sector provision; the development of outcome norms or service targets; and evaluation of the implementation of the manual.

Abbreviations

ALOS	Average length of stay or average length of admission
ANC	African National Congress
APA	American Psychiatric Association
CHC	Community health centre
CHP	Centre for Health Policy, University of the Witwatersrand
CHW	Community health worker
CMHC	Community mental health centre
CMHT	Community mental health team
DLP	Daily living programme
DPV	Daily patient visits
FTE	Full-time equivalent
GAF	Global Assessment of Functioning Scale
GDP	Gross domestic product
HSP	Hospital strategy project
KZN	KwaZulu-Natal
MASA	Medical Association of South Africa
MEDUNSA	Medical University of Southern Africa
MO	Medical officer
NCS	National comorbidity survey
NHS	National Health Service
NIMH	National Institute of Mental Health
OPD	Outpatient department
OT	Occupational therapist
OTA	Occupational therapy assistant
PD	Personality Disorder
PHC	Primary health care
PTSD	Posttraumatic stress disorder
SMI	Severe mental illness
SPC	Severe psychiatric conditions
TRC	Truth and Reconciliation Commission

UCT	University of Cape Town
WHO	World Health Organisation
WISN	Workload indicators for staffing need

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Chapter 1. Introduction

1.1 Context

In the aftermath of apartheid, South Africa has inherited a fragmented, under-resourced and inequitable public sector mental health service (Foster, Freeman, & Pillay, 1997a). Mental health care has been heavily reliant on chronic custodial treatment in large centralised institutions (Porteus, Sibeko, & Lee, 1998). Those mental health resources which do exist tend to be concentrated in urban areas (Flisher, Riccitelli, Jhetam, & Robertson, 1997) and follow patterns delineated by the racial segregation and inequities of apartheid (Pillay & Lockhat, 1997).

1.1.1 South African mental health services: a brief history

The current situation has clear historical roots. The perceived need to regulate and contain the "insane" was imported to South Africa with colonialism, which made its distinctive contribution to the care of "lunatics" through the establishment of asylums (Foster & Swartz, 1997b). The Cape Colony's first asylum was established on Robben Island in 1846, and followed by the construction of the Town Hill Asylum in Pietermaritzburg, the Fort England Mental Hospital in Grahamstown, the Valkenberg Lunatic Asylum in Cape Town and the Pretoria Lunatic Asylum (Makepeace, 1969). By 1912 the Robben Island asylum housed 500 patients. This pattern was seen in many colonial countries in Africa, Asia and South America, during the 19th century (Kilonzo & Simmons, 1998). As Desjarlais, Eisenberg, Good and Kleinman (1995) put it, "a large mental hospital, along with a central bureaucracy, a national school system, and a police force, was often the legacy of a retreating tide of colonialism" (p56).

In South Africa, perhaps even more than other settings, mental health care has been profoundly racialised. Although racial categorisation was not a notable feature of the early years of the Robben Island asylum, by the 1860s "lunatics" on the island were classified by race and gender, a trend which was sustained with the subsequent establishment of asylums (Foster et al., 1997b). The racialisation of mental health care continued into the 20th century. Racial attitudes have been shown to have

influenced diagnostic practices at the Valkenberg asylum during the period 1891-1920 (Swartz, 1995). The Mental Disorders Act of 1916 repealed all previous legislation, replaced the old language of "asylums" with new terms ("mental institutions"), and distinguished "mental disorder" and "mental deficiency". This legislation and the associated mental hygiene movement continued to reinforce racial differences through ongoing segregation, as did research which attempted to prove differences between blacks and whites in areas of intelligence, temperament and "culture" (Greenlees, 1902; Laubscher, 1937; Hammond-Tooke, 1975). The inherited social and habitual practices that defined race in all aspects of South African society were formalised in the legislation of racial segregation during the apartheid years of 1948-1994. This maintained abhorrent and inhumane practices in mental health facilities (Foster et al., 1997b):

> *"Makeshift, under-resourced asylum facilities for blacks were justified on the grounds that they approximated 'indigenous' lifestyle and were therefore preferred by black patients. In 1979, the Department of Health used 'cultural preference' as an argument to justify the failure to issue black patients with shoes"* (p13).

These practices continued in spite of indictments of South African psychiatry by international organisations. In 1979 a delegation from the American Psychiatric Association (APA) visited South Africa and condemned inferior medical and psychiatric care for black people, pointing out the destructive impact of apartheid on the mental health of black South Africans (American Psychiatric Association, 1979). The destructive impact of apartheid on the mental health of the nation as a whole has been well documented in other research (Dawes & Donald, 1994) and in the findings of the Truth and Reconciliation Commission (Truth and Reconciliation Commission, 2000).

Mental health service planning happened haphazardly under apartheid, according to an ideological framework of racial discrimination, institutionalisation, paternalism and some degree of privatisation (Freeman & Pillay, 1997). The apartheid government did provide a range of services through, for example, the Departments of Health and Population Development, Education, Manpower, Law and Order,

Correctional Services and Defence. However, these services were not coordinated systematically, and communities and service users were seldom consulted. The emphasis was on institutionally based custodial care and containment, with a systematic racial segregation of service delivery.

From the 1950s to the 1990s, while deinstitutionalisation was progressing in most western societies (Desjarlais, Eisenberg, Good, & Kleinman, 1995), South Africa made tentative piecemeal efforts to develop community-based care. In 1969, Department of Health policy initiated moves to develop community services in addition to hospital care (Freeman et al., 1997). In certain areas, innovations led to the development of community care. For example, in the former Orange Free State, local clinicians and planners reduced institutional and tertiary hospital bed numbers by 90% between 1985 and 1994, increasing community care through the development of clinic services (Freeman, Lee, & Vivian, 1994). However, in most of South Africa, institutions have remained the central locus of mental health care, and have consumed the vast majority of mental health care resources (Ensink, Leger, & Robertson, 1997).

In the final years of apartheid, attempts were made to develop more responsive and appropriate services. For example, in 1991, the Department of Health and Population Development produced a document entitled "The Organisation of Mental Health Services in the Republic of South Africa", which proposed a shift away from curative, hospital-based care (Department of National Health and Population Development, 1991). A new model of service delivery was proposed, in which 70-80% of care would be delivered at primary care level, and a further 10-20% at secondary level. These policy shifts were never implemented at a service level under the apartheid government.

A report by a task team appointed to investigate human rights violations and alleged malpractice in psychiatric institutions in 1995 concluded that there was a lack of parity in the standard of care in psychiatric institutions. The standard of care in formerly black institutions was found to be below that in formerly white institutions. The report recommended a review of all existing agreements with private

organisations providing psychiatric inpatient care (Pretorius, de Miranda, & Freeman, 1996).

With this legacy, provincial mental health services have encountered numerous infrastructural difficulties since the new African National Congress (ANC) government was elected in 1994. Under the new constitution, provincial authorities are given responsibility for the provision of mental health services. New provincial health services are faced with having to integrate services previously divided into homelands and so-called "independent states" under apartheid. The delineation of new provincial boundaries has also drawn attention to the neglect of rural areas. For example, mental health inpatient resources were concentrated in institutions in urban areas, such as Gauteng and the Western Cape, and patients were referred from surrounding areas (Lee & Zwi, 1997). There is now significant cross-border flow of patients referred from under-resourced rural provinces to predominantly urban provinces, and a need to develop appropriate local services within the newly defined provincial boundaries (Foster et al., 1997a).

The Truth and Reconciliation Commission (TRC) brought to light health services' numerous acts of commission and omission during the apartheid years (Truth and Reconciliation Commission, 2000). These include the failure of health services, specifically the Medical Association of South Africa (MASA), to condemn the torture and killing of political prisoners, like Steve Biko. For these acts, MASA has offered formal apologies. The South African Society of Psychiatrists has not formally apologised, but acknowledged in a written submission to the TRC that opposition by the Society to apartheid practices was only elicited after the application of external pressures (Stein, 1998).

Some mental health professionals were vocal in criticising apartheid and the gross violations of human rights that took place (Foster, Davis, & Sandler, 1987). Organisations such as the Organisation for Appropriate Social Services in South Africa (OASSSA) made attempts to organise mental health and other social service workers to take a stand against apartheid (Flisher, Skinner, Lazarus, & Louw, 1993). However, in the words of one commentator, "such criticism was likely too little and

too late" (Stein, 1998, p457). In many senses mental health services have reflected the injustices and discrimination of the society in which they have been embedded.

1.1.2 Global burden of mental disorders

Although apartheid has left its distinctive mark on mental health care in South Africa, many of the mental health problems and patterns of mental health care are generally observable in developing countries. Usually situated within general health care, mental health is frequently a neglected aspect of health care in countries throughout Africa, Asia, South America and the Pacific (Desjarlais et al., 1995).

This is in spite of estimations that mental disorders contributed to 10.5% of the global burden of disease in 1990, and predictions that this will rise to 14.7% by the year 2020 (Murray & Lopez, 1996). Of the ten leading global causes of disability, five are currently due to mental disorders, namely major depression, psychoses, epilepsy, alcohol dependence and the dementias (Murray, Lopez, & Jamison, 1994). Approximately 340 million people worldwide suffer from unipolar or bipolar depression, and 33 of the 45 million people with schizophrenia in the world live in developing countries (Weismann et al., 1999). In addition, 34% of all disability is due to behaviour-related problems, such as violence, diarrhoeal diseases, malnutrition, tuberculosis, sexually transmitted diseases, and motor vehicle and other accidental injuries (World Bank, 1993). In many countries, including South Africa, people who suffer from mental health problems are often stigmatised and marginalized within their own communities (Desjarlais et al., 1995; Pillay et al., 1997). The World Health Organization (WHO) has recognised the growing importance of mental health, focusing World Health Day and its annual World Health Report on mental health in 2001 (WHO, 2001c).

Yet national ministries in developing countries and international aid agencies have been relatively indifferent to mental health issues (Desjarlais et al., 1995). As a result, allocations of funding to mental health from within national health budgets are disproportionately small in relation to the dangers to human health that they represent (Table 1.1).

Table 1.1 *Total health expenditure, gross domestic product (GDP) and mental health expenditure in selected countries*

Country	Total expenditure on health as % of GDP	Mental health expenditure as % of total health expenditure
Azerbaijan	2.9	5.0
Chile	6.1	10.0
China	2.7	2.4
Czech Republic	7.6	3.0
Ghana	3.1	7.0
Lithuania	6.4	6.0
Norway	6.5	10.8
Ukraine	5.6	7.8
United Kingdom	5.8	12.4
United States	13.7	10.0

Source: (Knapp & McDaid, 2000). Cited with permission of the first author.

Estimates are that 2.5% of total health expenditure and 4.2% of hospital expenditure is dedicated to mental health in South Africa (Department of National Health, 1996). These limited funds are allocated in different ways at provincial level, where provincial health departments have autonomy over the distribution and expenditure of health budgets.

In the context of these financial constraints, careful planning of scarce resources is required. Recent literature has attempted to show that not only material poverty but also "service-delivery poverty" (such as inadequate resources, poor organisation, lack of comprehensiveness and inadequate community integration) has been associated with negative outcome of mental health problems, particularly schizophrenia (Saraceno & Barbui, 1997). The organisation of health systems and service delivery are therefore crucial to improving outcomes for people who suffer from mental health problems.

With an historical legacy of weak planning and fragmented services under apartheid, there is a need to reform the planning and delivery of mental health care in South Africa. The WHO has emphasised the need for a systematic, rational and transparent approach to planning services and allocating scarce resources, based on equity and the mental health needs of communities (WHO, 2001c). The WHO has also emphasised the role of governments in taking responsibility and acting as "stewards" of the mental health of their populations (WHO, 2000). Effective, comprehensive, community-based mental health programmes are feasible in developing countries, as shown in numerous examples (Kilonzo et al., 1998; Sharma, Murthy, Kumar, Agarwal, & Wilkinson, 1998; WHO, 2001c). This is so in spite of greater decentralization and pressures on public sector health systems associated with globalisation and the liberalization of markets (WHO, 1998).

With a history of inadequate services in South Africa, evidence of the burden of mental health problems, and the potential for effective interventions, there is an urgent need for government to take responsibility for developing mental health care, and to assist with the reform of mental health service planning and delivery.

1.1.3 Mental health service reform in South Africa

In the post-apartheid era, attempts are being made to reform mental health services, in keeping with new health policy. The vision for a new mental health service has been articulated in the "White paper for the transformation of the health system in South Africa", which states (Department of Health, 1997):

> *"A comprehensive and community-based mental health service should be planned and coordinated at the national, provincial, district and community levels, and integrated with other health services"* (p136).

This new policy is in keeping with recommendations from the WHO which, since the declaration of Alma Ata has encouraged the integration of mental health care into primary care (WHO, 1978) and the development of community-based mental health care (WHO, 1984; WHO, 1996b).

In 1997, in order to assist with the reform, the Directorate: Mental Health and Substance Abuse of the national Department of Health commissioned a study to develop norms and standards for mental health care in South Africa (Tender: GES 105/96-97) (Ensink & Lee, 1997). The study offered the opportunity to systematically review national public sector mental health resources, focusing on the needs of people with severe psychiatric conditions (SPC). This was the first time that a thorough national survey of public mental health services in South Africa had been conducted. Until this time there was only limited data available on the national distribution of mental health resources such as staffing and beds. There was no national information on the utilisation of mental health services such as admission rates, bed occupancy, length of admission and readmission rates. In addition to reviewing current resources, the study set out to consult widely with all stakeholders in mental health, with a view to developing acceptable service norms and standards. In a time of rapid social and political transformation, a set of guidelines or norms were thought to be necessary to assist in the development of an appropriate, community-based mental health service.

The Norms and Standards project was consequently undertaken in November 1997, in the hope of realising these benefits (Flisher et al., 1998). My own involvement was to take responsibility for the "norms" aspect of the project, which was distinguished from the "standards" aspect. Whereas the norms referred to recommended measures of service resources and service utilisation, standards referred to measures of the

quality of mental health care. (This distinction is discussed in more detail in chapter 3)

The norms aspect began with a thorough review of the international literature on norms and mental health service delivery A questionnaire was then distributed to provincial mental health service coordinators, requesting information on several aspects of current mental health service provision. The questionnaire provided the data necessary to report on 9 major service indicators. The 9 indicators were specified by the terms of the Department of Health tender (Ensink & Lee, 1997). The questionnaire was followed up with visits to each province, conducted by Lauren Muller (who took responsibility for the standards aspect of the study) and myself. During the provincial visits, we conducted workshops and consulted with mental health coordinators, service managers, clinicians, academics and other stakeholders, on the methodology for developing national mental health service norms and the content of the norms proposals.

A model was subsequently developed for estimating the need for mental health services and subsequent resource requirements in the South African population. Norms were then recommended on the basis of data from the service indicators, recommendations of provincial coordinators, the model and the literature review. Following the submission of the Norms and Standards report in July, 1998, the Directorate: Mental Health and Substance Abuse requested the development of a user-friendly "Norms Manual" for the implementation of the proposed service norms. The manual was completed in February 1999.

Since the completion of the Norms and Standards project, the World Health Organisation (WHO) requested the assistance of Professor Alan J. Flisher and myself in the collaborative development of an evidence-based guidance package for mental health policy and service delivery. This required a fresh review of the international literature and further development of methodologies for modelling and estimating mental health service resources. As far as this thesis is concerned, the WHO work has provided a more global perspective on mental health service planning in developing

countries, and has highlighted a range of financial and policy considerations which need to be kept in view when developing mental health service norms.

This thesis is the outcome of these projects.

1.2 Objectives

The thesis has four main objectives:

- To conduct a situation analysis of current mental health services in public sector mental health care in South Africa using 9 service indicators:
  - bed/population ratios,
  - staff/population ratios,
  - staff/patient ratios,
  - community/hospital ratios,
  - bed occupancy rates,
  - admission rates,
  - length of admission,
  - readmission rates and
  - default rates.

- To develop a model for estimating mental health service needs for people with severe psychiatric conditions (SPC) in an average South African population.

- To formulate a set of service norms for the mental health care of people with SPC, based on the indicators used in the situation analysis, estimations of service need from the model, and the recommendations of key provincial stakeholders.

- To develop a user-friendly planning manual for the implementation of mental health service norms at provincial and district level.

1.3 Chapter outline

To attain these objectives, the chapters of this thesis are arranged as follows

Chapter 2 reviews the literature relevant to each of the four objectives. Research conducted during the last 15 years in peer review journals is reported systematically for international settings as well as South Africa.

Chapter 3 describes the methodology employed to report mental health service indicators, develop a model for estimating resource needs, recommend mental health service norms and produce a manual for local planning.

Chapter 4 reports on the results of the research, including current levels of mental health service provision, the recommendations of the model, and the norms proposed for each service indicator.

Chapter 5 provides a discussion of the methodology, results, contributions and limitations of the research, as well as areas for further study and service development.

The norms manual is set out in Appendix F. The Appendices also include a spreadsheet of the model for estimating mental health service needs. Because the model allows for flexibility through the adjustment of certain variables in the calculation of local mental health service needs, a version of the spreadsheet on disc accompanies this thesis.

Chapter 2. Literature Review

2.1 Introduction

This chapter reviews the research literature relevant to the development of mental health service norms in South Africa. In general terms, the review introduces the reader to the subject of norms and its place in the field of mental health service planning and delivery. In addition to this general introduction, the purpose of this chapter is to provide a systematic review of the relevant research literature.

> *"In a systematic literature review evidence from scientific studies is located, evaluated and synthesised using a strict scientific design which must itself be reported in the review. The aim is to ensure a review which is comprehensive, unbiased and may be used with confidence for decision-making about research and delivery of healthcare" (Berry, 2002, p1).*

A systematic review is necessary to ensure that the current study does not either repeat research which has already been conducted, or present findings which are of no relevance to the existing body of knowledge. A systematic literature review therefore highlights certain gaps in the current knowledge base and indicates the need for the current study. As summarised elsewhere, a systematic literature review reduces the quantity of data; allows for the planning of research, service purchasing and guidelines; makes efficient use of existing data; ensures generalisability; checks consistency; explains inconsistency; quantifies data with the aid of meta-analysis; improves precision and reduces bias (Mulrow, 1994).

The following methods have been used to locate literature for this thesis:

1. searching the MEDLINE, PUBMED and PSYCHINFO data bases;
2. hand searching[1] all issues of the following journals in the past 15 years:
   - Acta Psychiatrica Scandinavica;
   - American Journal of Psychiatry;
   - British Journal of Psychiatry;

[1] The usefulness of both MEDLINE and hand searches has been demonstrated (Adams, Power, Frederick, & Lefebvre, 1994).

- Psychiatric Services (previously Hospital and Community Psychiatry); and
- Psychological Medicine;

3. scanning the reference lists in articles already located; and

4. suggestions from colleagues.

The systematic literature search was confined to publications in peer review journals. Where unpublished work, such as conference proceedings and unpublished reports were encountered, these have been included.

2.1.1 Chapter outline

The literature review in this chapter will commence with discussion of service indicators in mental health care. Service indicators are taken as a starting point for two reasons. Firstly, they are widely used in the literature as a measure of service resources, provision, utilisation and outcome (WHO, 1984; Andrews, 1991; WHO, 1996b; Thornicroft & Tansella, 1999). They therefore provide a useful introduction to the current realities in mental health service provision, both internationally and in South Africa. Secondly, the reporting of service indicators lays a foundation for the development of norms. In this thesis, norms are conceptualised as recommending levels for a given set of indicators. Whereas indicators are conceptualised as providing measures of existing service functioning, norms recommend the way in which a service should function, using the same "currency" of service measures (see Definitions, Sections 2.2.1 and 2.4.1). The foundation of norms in measures of existing service realities (via indicators) is understood to be an essential component of this study. A review of service indicators (including the rationale for their use, methods of calculation and factors which influence indicator levels) is therefore necessary for the subsequent development of norms.

The chapter will focus on nine service indicators which will in turn be used to generate service norms: bed/population ratios, staff/population ratios, staff/patient ratios, community/hospital ratios, bed occupancy rates, admission rates, average length of stay, readmission rates and default rates. The rationale for the selection of these indicators will be provided in discussion of each indicator.

Following discussion of indicators, this chapter will review the literature relevant to the development of a model for estimating mental health service needs in a local South African population. The model provides a tool for the calculation of service norms, based on an estimation of the mental health service needs of a population.

In the final section of this chapter, a review will be provided of the literature that specifically reports mental health service norms. Norms will be reviewed for each of the nine service indicators.

Research findings relevant to this study are subdivided into consideration of the literature in developed countries, developing countries (excluding South Africa) and South Africa. This geographical delineation is necessary in spite of concerns that the terms "developed" and "developing" are pejorative (Green, 1999). As Green (1999) notes, these terms are useful because they reflect the resource constraints of developing countries. In the field of mental health specifically, it has been shown that differences in levels of economic development impact on mental health resources and access to those resources (Desjarlais et al., 1995).

Inclusion of the literature in both developed and developing countries is necessary for three reasons. Firstly, while much of the research in the area of mental health service planning has been conducted in developed countries, research conducted in developing countries is essential to develop an understanding of mental health service planning in the context of resource constraints similar to those in South Africa. Secondly, it is important to provide an account of the variety of approaches that have been developed to mental health service planning and resource allocation, and the range of resource levels currently available. Thirdly, idiosyncrasies specific to South Africa make this broad review necessary. With its history of colonialism and the economic and political privileges bestowed on the minority white population by apartheid, South Africa displays elements of the services in both developed and developing countries. While the political reality of apartheid is now banished from South African legislation, realities of economic inequality persist. This has led to the current situation in which, for some people, standards of living approximate standards of living in wealthy or developed nations, while (often within a short geographical

distance) the majority of South Africans continue to live in conditions of poverty (McIntyre, Bloom, Doherty, & Brijlal, 1995).

2.2 Service indicators

2.2.1 Definitions

Service indicators are widely used in the mental health service planning literature (WHO, 1984; Jenkins, 1990; Andrews, 1991; WHO, 1996b). They have been variously defined as "variables that indicate or show a given situation, and thus can be used to measure change" (Green, 1999, p119), and "indirect assessments (or reasonable proxies) that summarise information relevant to a particular phenomenon" (Thornicroft et al., 1999, p65).

Green (1999) identifies two types of indicators. (1) "Shorthand" indicators provide summaries of information that would be too costly to measure in detail. For example, the use of the number of community health workers per head of population can be seen as an indicator of general health service availability. (2) "Proxy" indicators measure something that is inherently unmeasurable. For example, the gross national product (GNP) per capita has been used as a proxy indicator of development.

In this thesis, **indicators** are defined as measures that summarise information relevant to mental health service provision. All the indicators developed in this study are used, in Green's terms, as shorthand measures, which summarise measurable information. In their more common use, there is always the danger that a form of semiotic elasticity stretches the use of indicators, and they develop a "proxy" function. For example, bed/population ratios are occasionally taken as indicators of the general "level", and even quality, of inpatient service provision, rather than simply indicators of the numbers of beds available to serve a given population. As far as possible, this study attempts to restrict the use of indicators to their descriptive function.

Indicators can be located within the temporal and geographical dimensions of mental health service delivery. Thornicroft and Tansella (1999) have developed a "mental health matrix", which builds on previous distinctions between inputs, process and

outcomes (Jenkins, 1990), to include both a geographical and temporal dimension (Figure 2.1).

Figure 2.1 Indicators located in the mental health matrix

Temporal dimension →

Geographical dimension ↓		(A) Input	(B) Process	(C) Outcome
	(1) Country/ regional level	1A National: ❑ Bed/population ratio ❑ Staff/population ratio ❑ Staff/patient ratio ❑ Community/hospital ratio (staff)	1B National: ❑ Bed occupancy rate ❑ Admission rate ❑ Average Length of Stay ❑ Readmission rate ❑ Community/ hospital ratio (utilisation) ❑ Default rate	1C National: ❑ Suicide rate
	(2) Local level (catchment area)	2A Local: ❑ Bed/population ratio ❑ Staff/population ratio ❑ Staff/patient ratio ❑ Community/hospital ratio (staff)	2B Local: ❑ Bed occupancy rate ❑ Admission rate ❑ Average Length of Stay ❑ Readmission rate ❑ Community/ hospital ratio (utilisation) ❑ Default rate	2C Local: ❑ Suicide rate
	(3) Patient Level	3A ❑ Staff skills	3B ❑ Frequency of appointments	3C ❑ Symptom reduction

Source: (Thornicroft & Tansella, 1999)

In this scheme, inputs refer to the resources invested in a system; process to the way in which service items are delivered, including the service items themselves; and outcomes to the changes in functioning, morbidity and mortality among those to whom the service is delivered (Thornicroft et al., 1999).

In terms of this typology, this thesis is concerned mainly with input and process indicators, located at country and local level (cells 1A, 1B, 2A and 2B in Figure 2.1).

There is currently an emphasis in general health and mental health service literature on the development of outcome indicators (cells 1C, 2C and 3C) (Jenkins, 1990; Abedian, Strachan, & Ajam, 1998; Holcomb, Beitman, Hemme, Josylin, & Prindiville, 1998; Ruggeri, Biggeri, Rucci, & Tansella, 1998; Tansella & Thornicroft, 2001). However, the development of input and process indicators in current South African mental health services is important for several reasons.

1. At this point in the historical development of mental health services in post-apartheid South Africa, with the planned reform and consolidation of inadequate and fragmented services, it is important to conduct a national review of existing service resources (inputs) and utilisation (process). Until now this information has not been available. The history of inequitably distributed resources under apartheid makes a clear analysis of present resource distribution essential.

2. This data is particularly important in the context of plans to downscale large institutions and develop community-based mental health care (Department of Health, 1997). A survey of resources (inputs) would provide an indication of the current distribution of resources between hospital and community-based care. This could be repeated in future, to assess the progress of planned deinstitutionalisation.

3. The use of outcome indicators in international settings has frequently taken place with sound knowledge of available resources and relatively well developed input indicators (Jenkins, 1990). As mentioned, until this time

there has been no systematic national data that report input and process indicators for mental health services in South Africa.

4. The emphasis on input and process indicators in this study does not exclude the possibility of future outcome studies, and may be seen as a stepping stone to future studies of outcome indicators. This study highlights the gaps in current information (particularly mental health outcomes), and draws attention to those areas of current mental health services that most urgently require further study and development.

In the following section, nine service indicators are discussed independently. It needs to be emphasised that these indicators relate in complex ways, and cannot be considered in isolation from each or from other variables. For example, the rates of bed occupancy (the degree to which available beds are occupied) and admission rates (the number of admissions over a given period of time) are informed by other indicators, including bed/population ratios (the number of available beds), staff/patient ratios (the number of staff available to care for patients who occupy the beds), lengths of stay (the time period during which patients require care in inpatient settings), and readmission rates (the rate at which patients are readmitted to a facility).

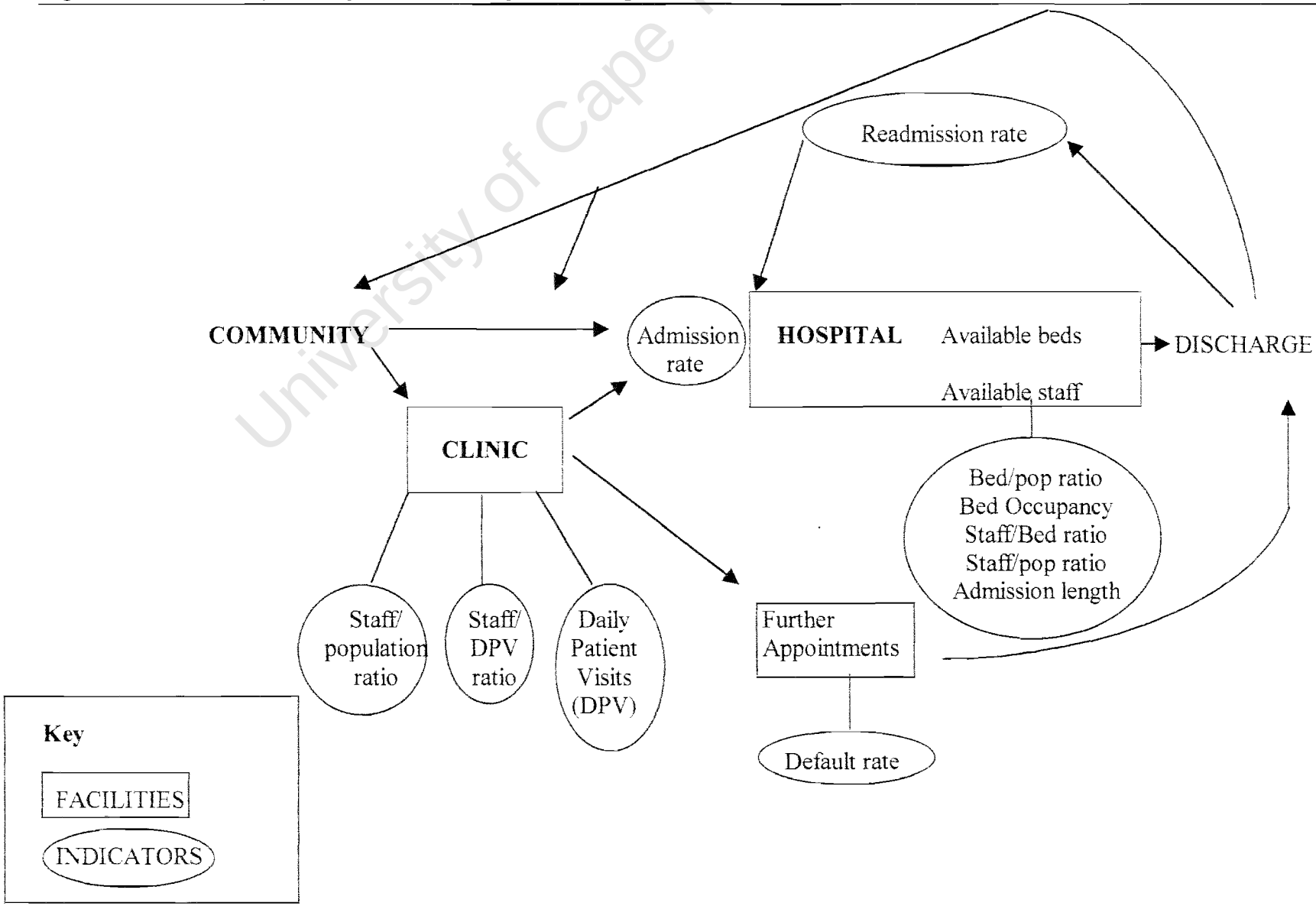
In figure 2.2 an illustration is provided of the process that service users undergo in their contact with mental health services. Beginning in the community, service users may attend a local clinic. Indicators of the rate at which they attend (Daily patient visits (DPV)) and the staff available at the clinic (staff/population ratios and staff/DPV ratios) provide measures of service utilisation and resources at this facility. From the clinic, the user may be offered further appointments. The default rate provides an indicator of whether that offer is taken up and of the utilisation of available staff time. Alternatively, the user may be admitted to hospital, either as a clinic referral or via direct emergency admission (measured by an indicator of the admission rate). During the period of the user's admission, the available beds (bed/population ratio, bed occupancy), available staff (staff/population and staff/bed ratios) and the length of stay are useful indicators of the resources and utilisation of the hospital service. Following their admission, the service user will be discharged to the community or to further community ambulatory service (clinic) appointments.

The readmission rate is a useful measure of the rate at which service users are readmitted to hospitals, possibly indicating the unavailability of community support services, or the premature discharge of the service user. The indicators which are used to measure service resources and utilisation in this study are thus illustrated to be essentially interdependent.

Furthermore, the information provided by these indicators needs to be supplemented by other considerations in order to thoroughly assess a mental health service. These considerations include information on outcomes for service users (Tansella et al., 2001), standards or quality of care (WHO, 1994; WHO, 1997), level of staff experience and expertise (Sacks, 1992), practice guidelines (sometimes referred to as clinical guidelines) (WHO, 1993a), clinical policy, and the facilities available within the inpatient or outpatient setting. In addition it is likely that indicators of service resources and utilisation will change over time as services develop or decline. As some researchers have argued, it is essential that planners adopt a longitudinal perspective in order to fully understand trends in service utilisation (Butwell, Jamieson, Leese, & Taylor, 2000). These considerations should be kept in view when comparing indicators across different mental health systems, and in assessing the generalisability of particular indicators at different historical points.

With the context of service indicators and their essential interdependence in view, this review now turns specifically to a consideration of each service indicator.

Figure 2.2 Service flow diagram, illustrating the interdependence of service indicators



2.2.2 Bed/population ratios

In a recent commentary, Geller (1997) notes that in spite of advances in the rehabilitation of chronically mentally ill patients in the community, the measures of service delivery in psychiatric care remain primitive: "we still count beds" (Geller, 1997, p1233). Geller's comment rings true in spite of the efforts of planners and clinicians. Although more sophisticated indicators have been developed (Jenkins, 1990; Parry, 1994; Tansella et al., 2001), the number of beds per unit of population remains a useful indicator of the resources available for inpatient mental health care in a given catchment area. It is a measure widely used in the planning and service literature, and one that is relatively consistently reported (which is unusual in a field with multiple uncontrolled variables). It is also relatively easy to calculate, requiring only figures for available psychiatric beds and the population of the catchment area that the facility serves.

2.2.2.1 Critique of bed/population ratios

Despite the above comments, this measure is complex, and cannot stand alone as a mental health care indicator. Several factors evoke caution in the use and generalisability of bed/population ratios.

- Numbers of beds need to be considered in relation to the level of sophistication of the community services adjacent to which inpatient facilities are located. Several studies describe inpatient services which are supplemented by an extensive network of psychiatric outpatient care through general practitioners, psychiatrists and psychiatric nurses as well as social and complementary services delivered by both health and welfare systems (Rossler, Loffler, Fatkenheuer, & Riecher-Rossler, 1992; Lelliot & Wing, 1994; Vogel & Huguelet, 1997). In Geneva, for example, the psychiatric health system is characterised by a highly developed ambulatory system of care with multiple approaches (psychodynamic therapy, rehabilitation, family therapy and somatic treatment) (Vogel et al., 1997). The aim of these systems is to assist patients to live in the community. As one recent study has shown, opening more beds is not necessarily an answer to easing

pressure on services (Lee & Bradley, 2000). Bed/population ratios that are reported without an understanding of the context within which beds exist, do not accurately reflect the nature of the mental health care that is provided.

- In the post-deinstitutionalisation era, numbers of residential placements do not necessarily reflect numbers of psychiatric hospital beds. In the USA, for example, it is difficult to find meaningful comparisons for bed/population ratios when patients with severe mental illness are housed in a range of residential facilities. In a national survey in the USA, with a sample consisting of 1500 agencies serving 59 000 individuals with psychiatric disabilities in 16 000 residential settings, residential settings included group homes (23%), supervised apartments (21%), board-and-care homes (10%), supportive housing (9%) and halfway houses (9%) (Randolph, Ridgway, & Carling, 1991). Bed/population ratios therefore derive meaning from the kind of facility in which the beds are located.

- Even within hospital settings, the difference between beds located in psychiatric institutions and those located in decentralised general hospitals is important. For example, in South America, mental health service reform during the 1980s and 1990s led to the reduction in bed numbers in psychiatric institutions and the development of psychiatric inpatient units in general hospitals, the latter increasing by 50-75% (Larrobla & Botega, 2001). Whereas beds in psychiatric institutions have been associated with long term custodial care, beds in general hospitals tend to be associated with acute care that is integrated into general health care and the wider society. It is therefore important that when bed/population ratios are reported, they are reported according to the nature of the hospital facility within which they exist.

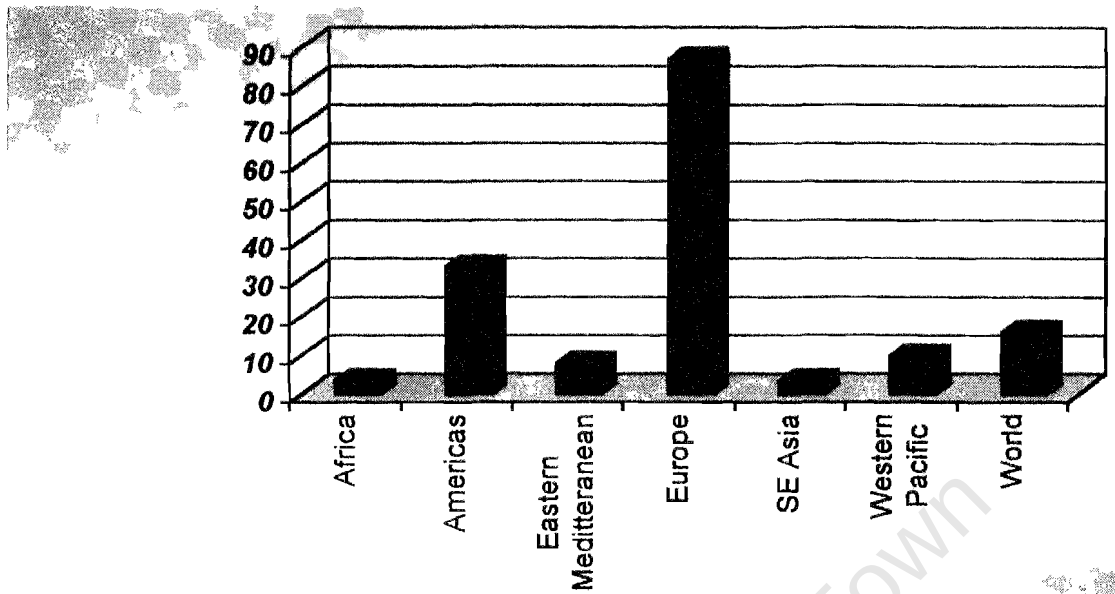
Hafner provides a useful statement on the complexity and yet the viability of reporting bed/population ratios for specified catchment areas or populations (Hafner, 1987):

> *"The estimates of psychiatric bed needs, no matter how many relevant factors they take into account, have a higher degree of uncertainty when the catchment areas concerned are not so clearly definable to allow a careful analysis of the needs and a monitoring of changes. It therefore seems necessary to plan the services at a more global level, for example to work out a nationwide scenario, and to design the service systems flexible enough to make adjustments to altered conditions possible"* (p124).

The review of bed/population ratios is therefore undertaken with the cautionary note that bed/population ratios provide only a partial view of mental health care, and should be interpreted in the context of the environment in which care is delivered.

By way of introduction, to provide a global perspective on psychiatric bed distribution, the WHO has reported total psychiatric beds per 100 000 population in the Atlas survey of mental health resources in the world, by each of the six WHO regions (WHO, 2001a) (Figure 2.3). The low bed numbers in Africa are eclipsed only by South East Asia, and provide an indication of the deficits in African psychiatric bed numbers, relative to Europe and the Americas.

Figure 2.3 Psychiatric beds per 100 000 population, by WHO region



Source: (WHO, 2001a)

2.2.2.2 Bed/population ratios in developed countries

Developed countries are characterised by relatively well-developed mental health resources and a history of relatively well-developed psychiatric care, both of which are notably absent in developing countries (Freeman et al., 1994).

In the discussion that follows, total bed/population ratios will be reported first, followed by bed/population ratios for acute and medium-long stay facilities.

2.2.2.2.1 Total psychiatric bed/population ratios

Total psychiatric bed/population ratios provide a broad indicator of the resources available for psychiatric inpatient care and a useful means of comparing different mental health systems, in spite of the limitations noted above. Table 2.1 provides a summary of recent studies that report this information. The table illustrates that there is considerable variability between countries in total bed/population ratios (from 20 to 252 per 100 000 population). Among other factors, this reflects varying policies regarding clinical practice and acceptable bed

numbers. At one end of the spectrum, Italy's legislated emphasis on community-based care has led to a situation of few bed numbers (Fioritti, Lo Russo, & Melega, 1997), whereas Japan's continued emphasis on institutionally based care sustains relatively large bed numbers (Inoue, 1998; Shinfuku, 1998).

Table 2.1 Total bed/population ratios per 100 000 population in developed countries

Study	Location	Data source	Population	Ratio		
				Hospital	Non-hospital	Total
(Holmberg, 1988)	Sweden	Hospital data, 1982	8 600 000	220	*	220
(Rosenheck & Astrachan, 1990)	Non-Veterans Affairs facilities, USA	NIMH Survey, 1983	Total civilian population*	*	*	82
(Rosenheck et al., 1990)	Veterans Affairs facilities, USA	NIMH Survey, 1983	Total veteran population*	*	*	72
(Lamb, 1992)	USA	State Psychiatric Hospital data	250 000 000	41	*	41
(Koizumi & Harris, 1992)	Japan	Hospital data, July 1991	National population*	252	*	252
(Rossler et al., 1992)	Baden-Wurttemberg, Germany	Service utilisation data	850 000	*	*	70
(Australian Department of Human Services and Health, 1995)	Australia	National Health Strategy data	17 000 000	42	*	42

* Number not provided

Table 2.1 Total bed population ratios per 100 000 population in developed countries (cont'd)

Study	Location	Data source	Population	Ratio		
				Hospital	Non-hospital	Total
(Kates, 1994)	Israel	National survey, 1958-1990	5 000 000 (approx)	150	*	150
(Lelliot et al., 1994)	England	UK Health Service Indicators	12 372 000	57	45	102
(Lelliot et al., 1994)	Wales	UK Health Service Indicators	1 189 000	75	56	131
(Lelliot et al., 1994)	Scotland	UK Health Service Indicators	372 000	79	39	118
(Lelliot et al., 1994)	Northern Ireland	UK Health Service Indicators	1 245 000	140	13	153
(Fioritti et al., 1997)	Emilia-Romagna, Italy	Service records	4 000 000 (approx)	20	*	20
(Vogel et al., 1997)	Geneva, Switzerland	Hospital records	380 000	91.3	*	91.3

* Number not provided

The bed/population ratios reported in Table 2.1 need to be understood in their historical context. Since the 1950s, the broad trend in developing countries has been a decline in bed/population ratios, in keeping with deinstitutionalisation and the development of community-based mental health care (Thornicroft et al., 1999; Geller, 2000). This process has been driven by innovations in pharmacotherapy, improved outcomes in psychosocial interventions and changing public perceptions of the rights and needs of people with mental disorders. For example, in the USA, bed numbers have been reduced by approximately 90% since deinstitutionalisation began, from 339 to 29 occupied state psychiatric hospital beds per 100 000 population (Lamb, 1998). In Australia there was a tenfold decrease from 310 to 30 psychiatric hospital beds per 100 000 over the same period (Currier, 2000). Similar trends are evident in Europe (Currier, 2000). Finland has seen one of the most rapid deinstitutionalisation movements, with the use of psychiatric beds being reduced by one third from 1980 to 1998 (Salokangas & Saarinen, 1998). Of note is the exception of Japan (see Table 2.1), where psychiatric bed numbers actually increased between 1960 and 1993, although some studies report that community-based care has been developed (Inoue, 1998; Shinfuku, 1998).

In most developed countries, attempts have been made to develop community services as bed numbers have been reduced (Thornicroft et al., 1999). In some settings community-based care is relatively well resourced. For example, in Emilia-Romagna, Italy, the substantial reduction in bed numbers following the introduction of psychiatric service reforms in 1978 was accompanied by considerable growth in community services. By 1994, in the region of 4 million people, the community services included: 145 community mental health centres, 48 day treatment or rehabilitation centres, 12 general hospital psychiatric wards, 3 university psychiatric clinics, 24 staffed hostels,

and 123 supervised apartments, not to mention 7 private psychiatric clinics (Fioritti et al., 1997).

However, there has been concern in some developed countries that bed reductions have proceeded in advance of community-based service developments, leaving both hospital and community services under-resourced. For example, in London, a King's Trust review of mental health services has found that there are now too few beds to admit patients, and too few community residential places to which inpatients can be discharged (Goldberg, 2000). Similarly, a study of acute psychiatric care in the UK has shown that many acute psychiatric beds are unavailable because they are occupied by patients who are no longer acutely ill but cannot be discharged because other community-based services are not available (Moore & Wolf, 1999). In Germany, Austria, Switzerland and Luxemburg, while psychiatric bed numbers have been reduced, there have been political and financial constraints on these reductions and on the development of appropriate care in general hospital and community settings, according to some authors (Haug & Rossler, 1999).

2.2.2.2.2 Acute bed/population ratios

The distinction between acute and medium-long stay psychiatric beds reflects a trend which has emerged in the deinstitutionalisation era towards the treatment of patients for increasingly short periods of time in inpatient settings (Lelliot et al., 1994). While the conceptualisation of acute psychiatric facilities varies considerably across different mental health systems, there appears to be some consensus that these facilities are designed for the brief management of patients in an acute state of crisis. These patients are subsequently: (a) discharged into the community with a planned follow-up programme, or (b) in exceptional circumstances, transferred to a more long term inpatient facility (Surles & McGurrin, 1987; Flannigan et al., 1994; Powell, Hollander, & Tobiansky, 1995).

In this context, there is considerable variety in terms of the perceived need for beds (Table 2.2). Freeman et al. (1994) concede that there is no "correct" recipe for calculating reasonable hospital or supervised residential bed ratios. There is a greater degree of consensus in the ratios provided in the British studies (Lelliot et al., 1994; Lelliot, Knapp, Audini, & Chisholm, 1996), all of which fall between 27 and 34 acute beds per 100 000 (Lawrence, Copas, & Cooper, 1991). This greater consensus can be ascribed to: (a) the fact that these studies all refer to the same country which has a national health service; and (b) the studies all had similar methodologies.

Table 2.2 *Acute bed/population ratios per 100 000 population in developed countries*

Study	Location	Data source	Ratio
(Australian Department of Human Services and Health, 1995)	Australia	National mental health report	21
(Bachrach, Santiago, Berren, & Hannah, 1988)	Tucson, USA	Public general hospital records	7
(Carling, Miller, Daniels, & Randolph, 1987)	Vermont, USA	State hospital records	5
(Dabrowski & Stanczak, 1988)	Poland	Psychiatric hospital records	0
(Dowell, Poveda de Augustin, & Lowenthal, 1987)	Madrid, Spain	Mental health service records	0
(Holmberg, 1988)	Sweden	Psychiatric and general hospital records	50

(Lawrence, Cumella, & Robertson, 1988)	UK	District psychiatry department records	30
(Lawrence et al., 1991)	UK	Single hospital records for 1977	31
(Lawrence et al., 1991)	UK	Single hospital records for 1978	30
(Lawrence et al., 1991)	UK	Single hospital records for 1985	27
(Lelliot & Wing, 1994)	59 UK Districts and Health Boards	UK Health Service Indicators	28
(Lelliot et al., 1996)	Eight districts of England and Wales	Survey	34
(Rudas, 1990)	Vienna, Austria	Psychiatric hospital records	9

In the context of the changed role of acute care, certain services have begun to explore creative alternatives to traditional hospital care. For example, "partial hospitalisation" has been developed as a strategy for catering for the needs of patients with severe psychiatric illness in an ambulatory treatment programme (Parker & Knoll, 1990). This includes patients who are able to maintain themselves in the community at a minimum level of functioning, present no immediate harm to themselves or others, and have a consistent place of residence. In the USA, researchers have found that a combined day hospital/crisis respite community residence had the same treatment effectiveness as acute hospital care for poor, urban, acutely ill voluntary patients with severe mental illness (Sledge et al., 1996). Outcome measures included clinical, functional, social adjustment, quality of life, satisfaction, symptoms, overall functioning, and social functioning. The latter three showed a statistically significant improvement under

the experimental condition. These issues will be explored further in the literature review of community/hospital ratios (section 2.2.5).

2.2.2.2.3 Medium or long stay bed/population ratios

Contemporary notions of the role and function of medium-long stay psychiatric facilities are under continual review. In spite of policies of replacing large long stay psychiatric hospitals with services centred on small admission units and few medium- and long-stay hospital facilities, patients continue to be admitted for protracted lengths of stay (Clifford, Charman, Webb, & Best, 1991; Lelliot et al., 1994). So-called "new long stay" or "new chronic" patients were first observed in deinstitutionalisation programmes in England and Wales during the late 1960s and early 1970s (Magnus, 1967; Wing, 1971). The service needs of "new long stay" patients continue to be monitored in recent studies (Holloway, Wykes, Petch, & Lewis-Cole, 1999; Shepherd, 1998). Some of these patients have remained in institutions because: (a) the handicap of psychiatric illness and associated physical illness and disability require 24 hour nursing and medical care; (b) their behaviour cannot be managed in community settings; or (c) there is no alternative care available in the community (Clifford et al., 1991). Other new long stay patients are discharged from institutions, only to accumulate inappropriately in acute facilities or rotate through a "revolving door" of acute care and inadequate community supports (Shepherd, 1998). The conflicting needs of deinstitutionalisation policies and new long stay patients is further complicated by varying local policies around the management of these patients (Lelliot et al., 1994) and the range of facilities which are now in use to accommodate patients in need of longer term care (Randolph et al., 1991).

For these reasons, consensus on bed/population ratios in medium-long stay settings is difficult to ascertain (Table 2.3). As with total and acute bed/population ratios, there is considerable variability between countries.

Table 2.3 Medium-long stay bed/population ratios per 100 000 population in developed countries

Study	Location	Data source	Ratio		
			Hospital	Non-hospital	Total
(Australian Department of Human Services and Health, 1995)	Australia	National mental health report	21		21
(Carling et al., 1987)	Vermont, USA	State hospital records			34
(Dabrowski et al., 1988)	Poland	Psychiatric hospital records			107
(Dowell et al., 1987)	Madrid, Spain	Mental health service records			20
(Faulkner, Bloom, Bray, & Maricle, 1987)	Oregon, USA	Survey of 36 mental health programmes			36
(Lawrence et al., 1988)	UK	District psychiatry department records			41
(Lelliot et al., 1996)	8 districts in England and Wales	Survey	18	95	113
(Lelliot & Wing, 1994)	59 UK Districts and Health Boards	UK Health Service Indicators	27	43	70
(Rudas, 1990)	Vienna, Austria	Psychiatric hospital records			66

In spite of variability, the ongoing trend of reducing numbers of medium-long stay beds is clear. Table 2.4 provides an illustration of ongoing deinstitutionalisation through falling long stay bed numbers (compared to relatively stable short stay bed numbers) in England (UK Dept of Health, 1995). Unfortunately there were no general population figures available for England in this study, to enable calculation of bed/population ratios, and therefore more meaningful comparisons.

Table 2.4 *Average daily number of available "mental illness" beds, wards open day and night (i.e. 24 hours), England, 1992-93 to 1994-95 (UK Department of Health, 1995)*

Age category	**Duration**	**1992-93**	**1993-94**	**1994-95**
Children	Short stay	579	527	496
	Long stay	**57**	**76**	**55**
Elderly	Short stay	5774	6239	6392
	Long stay	**13 664**	**12 111**	**10 760**
Other ages	Secure unit	933	1 029	1 083
	Short stay	15 299	14 681	15 213
	Long stay	**11 003**	**8 869**	**7 829**
Total		47 308	43 532	41 827

In spite of these trends there remains some consensus among current writers in the UK that there is at least some need for both acute and long stay psychiatric beds (Goldberg, 1999). In Armstrong's words: "'there remain groups of patients whose mental illness renders them either recurrently or permanently so disturbed as to make inpatient care the preferred method of treatment on humanitarian and social grounds as much as on medical grounds'" (quoted in Freeman, et al., 1994, p.9). Similarly in the USA, there is widespread acknowledgement that some patients are "'resistant to deinstitutionalisation'" (Gottheil et al., 1991, quoted in Freeman et al., 1994, p.15) and require long-term inpatient care.

2.2.2.3 Bed/population ratios in developing countries

Relatively little information is available on bed/population ratios in developing countries. Except for South Africa (see below), breakdowns of total figures into acute and medium-long term bed/population ratios could not be located for developing countries. This section therefore focuses on total bed/population ratios (Table 2.5). The ratios produced by the World Psychiatric Association were reported in unpublished conference proceedings.

Table 2.5 Total bed/population ratios per 100 000 population in developing countries

Study	Location	Population* (millions)	Ratio
(Alem, 2000)	Ethiopia	55	0.7
(Chikara & Manley, 1991)	Zimbabwe	n/s	14
(Freeman et al., 1994)	Botswana	n/s	11
(Okasha, 1999)	Egypt	60	15
(Okasha & Karam, 1998)	Bahrain	0.5	40
(Okasha et al., 1998)	Jordan	4.7	12
(Okasha et al., 1998)	Lebanon	2.7	67
(Okasha et al., 1998)	Palestine	2.25	16
(Okasha et al., 1998)	Saudi Arabia	16.8	12
(Okasha et al., 1998)	United Arab Emirates	1.8	2
(Okasha et al., 1998)	Yemen	12.5	1.4
(Visser, Haasbroek, & Bodemer, 1989)	Turkey	n/s	15
(WHO, 1996a)	Albania	n/s	25
(WHO, 1996a)	Brazil	n/s	67
(WHO, 1996a)	China	n/s	11

(WHO, 1996a)	Korea	n/s	29
(WHO, 1996a)	Malaysia	n/s	23
(WHO, 1996a)	Myanmar	n/s	4
(WHO, 1996a)	Philippines	n/s	11
(WHO, 1996a)	Sri Lanka	n/s	2
(World Psychiatric Association, 1996)	Kenya	n/s	11
(World Psychiatric Association, 1996)	Mozambique	n/s	3
(World Psychiatric Association, 1996)	Nigeria	n/s	4
(World Psychiatric Association, 1996)	Tanzania	n/s	6
(World Psychiatric Association, 1996)	Uganda	n/s	4
(World Psychiatric Association, 1996)	Zambia	n/s	5
(Yousaf, 1997)	Pakistan	140	2

* Population figures as reported by the authors
n/s = Not stated by the authors

The total bed/population ratios reported in developing countries in Table 2.5 are considerably lower than those in developed countries. Freeman *et al.* (1994) note that psychiatric institutions still seem to play a major role in mental health care in developing countries and that there is a discrepancy between developed and developing countries in the amount of research involved in community-based initiatives. Compared to levels in developed countries, total psychiatric bed/population ratios of 2 per 100 000 in Sri Lanka and Pakistan paint a stark picture of inpatient mental health care.

In certain developing countries, a concerted programme of deinstitutionalisation has been in place for some time. In Botswana, for

example, deinstitutionalisation was initiated in 1977, and the bed/population ratio has been reported as 11 per 100 000 with an extensive network of community-based support (Ben Tovim, 1987; Freeman et al., 1994). Nicaragua has undergone similar changes (Freeman et al., 1994). In Jamaica, deinstitutionalisation and the development of community services has proceeded at a rapid pace. Between 1960 and 1990, the resident population of Jamaica's only psychiatric hospital dropped by 58% to 1296 beds, a bed/population ratio of 54 per 100 000 population (Hickling, 1994). During the 1990s, Brazil has reduced its psychiatric hospital bed numbers by 21%, from 85 037 in 1991 to 67 462 in 1996 (Alves, 1996) (population figures not reported).

Desjarlais *et al.*, (1995) have provided additional total bed/population ratios for selected countries in the Western Pacific region, most of which have developing economies: China - 0.73 beds per 100 000 population; Fiji - 2.56; Hong Kong - 7.3; Korea - 2.86; Malaysia - 2.28; Papua New Guinea - 0.59; Philippines - 1.13; Singapore - 11.06; and Vietnam - 0.78. The figures appear extremely low compared to developing countries and reports of the same countries from different sources, e.g., China – 11 beds per 100 000 population (WHO, 1996a). This could reflect: *(a)* underdeveloped psychiatric services; *(b)* frequent utilisation of traditional health practitioners; or *(c)* poor data quality. Because of concerns of poor data quality, these figures are not included in Table 2.5.

2.2.2.4 Bed/population ratios in South Africa

In South Africa, only four studies have been conducted which report bed/population ratios in mental health facilities (Table 2.6). Of these, three focus on the services available within specific provinces: Free State (Freeman et al., 1994; Freeman, Lee, & Vivian, 1999a; Freeman, Lee, & Vivian, 1999b; Lee, Freeman, & Vivian, 1999a; Lee, Freeman, & Vivian, 1999b), Eastern Cape (Department of Health, 1996) and Western Cape (Ensink et al., 1997)). Only one study reports national comparative data (Lee et al., 1997).

The national study by Lee and Zwi (1997) draws on data from the National Mental Health and Substance Abuse Directorate, senior mental health management at provincial level, key informant interviews, questionnaires sent to the 9 provinces, and document reviews. The reported bed/population ratios include beds for mentally handicapped or learning disability patients. The reported bed numbers therefore represent a higher number of beds than those reported in the above studies in developed and developing countries (which do not include mental handicap or learning disability), and limit comparability. Because beds for mental handicap or learning disability are included, these figures also have limited usefulness for the development of norms for severe psychiatric conditions.

Furthermore Table 2.6 also serves to illustrate the varying figures that can be generated when differing methodologies are used to gather data, for example the variation in bed/population ratios for the Free State (7 and 25) and the Western Cape (61 and 92). This variation highlights the need to develop information systems in South Africa and to collect and report data using a consistent methodology.

In spite of these limitations, the studies reported in Table 2.6 provide a broad indication of the distribution of bed resources in South African mental health services. They illustrate the maldistribution of bed numbers across the country (from 0 in Mpumalanga to up to 92 beds per 100 000 population in the Western Cape (61 excluding mental handicap beds)). Beds appear to be most concentrated in urban provinces (such as Gauteng and the Western Cape) and least concentrated in predominantly rural provinces (such as Mpumalanga, North West, and Northern Cape). Some predominantly rural provinces such as Northern Province, Eastern Cape and KwaZulu-Natal have large psychiatric institutions that belie the accessibility of inpatient services. The substantial inequity between provinces suggests the need to develop some guidelines or norms to improve equity and assist provinces to provide accessible and appropriate inpatient mental health care to the population.

Table 2.6 Total bed/population ratios per 100 000 population reported in South African research

Study	Province	Popu-lation*	Psychiatric hospitals	Beds	Ratio
(Department of Health, 1996)	Eastern Cape	8 500 000	6	2 228	33
(Lee et al., 1997)	Eastern Cape	6 544 200	4	2 083	32
(Freeman et al., 1994)	Free State	2 400 000	1	168 **	7
(Lee et al., 1997)	Free State	2 756 000	1	690	25
(Lee et al., 1997)	Gauteng	7 637 100	4	2 300	30
(Lee et al., 1997)	KwaZulu-Natal	8 552 500	2	2 400	28
(Lee et al., 1997)	Mpumalanga	2 839 300	0	0	0
(Lee et al., 1997)	Northern Cape	720 000	1	101	14
(Lee et al., 1997)	Northern Province	5 071 300	3	2 042	40
(Lee et al., 1997)	North West	3 339 700	1	3 00	9
(Lee et al., 1997)	Western Cape	3 782 300	4	3 481	92
(Ensink et al., 1997)	Western Cape (in 1993)	(Not stated)	3	2 223	61

* Population figures as reported by the authors
** Non-forensic beds only

The mental health services in two provinces have received specific research attention. In the *Free State*, Freeman et al., (1994) reported that there were about 35 long stay beds for patients aged under 65 years. However, white patients occupied 30 of these beds! There were thus effectively 10 'white beds' per 100 000 population and only 0.2 'black beds' per 100 000 population. There were no sheltered or supervised homes for black psychiatric patients, none of the black patients interviewed attended day care, and there was no comprehensive group work programme. Nevertheless there appeared to be a relatively low incidence of crime, vagrancy, and homelessness among

patients, and a low proportion of psychiatric morbidity among prisoners compared to most other provinces.

In the *Western Cape*, Ensink et al., (1997) report a total bed/population ratio of 61 per 100 000 population (excluding mental handicap or learning disability beds). There were 4 194 beds in the province, including 1 971 beds for those with mental handicap or learning disability. There was a wide variation in the bed/population ratios according to the type of treatment that was offered. These were as follows: mental handicap or learning disability beds - 54 per 100 000 population; acute/short term - 18; long-term/chronic - 14; geriatric - 13; forensic - 8; neuroclinics - 4; drug/alcohol rehabilitation - 2; and children and adolescents - 0.01. An analysis of the admissions showed that there were no differences in the proportions of patients admitted from each "racial" category. However, inequities in outpatient provision point to the need for the development of community services for black patients. Ensink et al., (1997) conclude that although the Western Cape is relatively well resourced compared to other provinces, it is not oversupplied when compared to other countries, chiefly because of the lack of community services. They also call for increased provision of acute beds at secondary rather than tertiary hospitals. Contrary to international trends, there is an emphasis on beds in tertiary hospitals at present in Western Cape. Transformation to secondary level care, the authors argue, would improve access and make better use of specialist personnel.

2.2.2.5 Bed/population ratios: conclusions

The findings from the literature indicate a wide variety in bed/population ratios among developed countries and an even greater discrepancy between developed and developing countries. The provision of appropriate bed numbers per unit of population appears to depend at least partially on local policies, available resources and the ability of services to provide community-based care for patients outside of hospital settings.

Relative to developed countries and some developing countries, South African mental health services are under-resourced, particularly in the light of the

relatively well-developed community-based care in most developed countries. There is severe maldistribution of bed numbers across provinces in South Africa, with beds concentrated in large psychiatric institutions. Current data are methodologically limited for the purposes of this study. There are no data that systematically report bed/population ratios for all provinces for services for people with severe psychiatric conditions. These findings indicate the need to systematically report bed/population ratios for all provinces, which can enable the development of guidelines or norms for the appropriate planning of scarce inpatient resources.

2.2.3 Staff/population ratios

Staff/population ratios constitute a useful indicator of the number of staff available to meet the mental health needs of a given population and are widely used in the literature (Rispel, Price, & Cabral, 1996; WHO, 1996b). Several studies in developed countries report bed/population ratios as a means of describing inpatient care per unit of population and subsequently report staff/*bed* or staff/*patient* ratios for existing facilities as the next step in calculating human resource input requirements (Lelliot et al., 1996). This approach, when linked with a description of the facilities within which care takes place, can provide a detailed picture of levels of input. Although staff/patient ratios will be discussed in section 2.2.4 below, there are advantages to first reporting staff/*population* ratios:

- staff/bed ratios based on available beds alone do not account for outpatient staff, and therefore do not provide the global picture of available human resources that is possible with staff/population ratios;
- the accuracy of staff/patient ratios depends at least partially on the accuracy of the denominator (number of patients), which may be difficult to ascertain within the constraints of current information systems in South Africa; and
- because staff/population ratios offer a global picture of numbers of available staff for a given population, they facilitate comparison between mental health services in different areas (see, for example, Ensink et al., 1997; Flisher et al., 1997).

2.2.3.1 Critique of staff/population ratios

As with bed/population ratios, the usefulness of staff/population ratios is limited and must be informed by an understanding of the context within which they are located. For example, the Hospital Strategy Project (Monitor Company, 1996) and others (Gray, 1998) have stressed the need for a systemic approach in which human resources are planned according to functional units and skill mix. This implies that there is limited value to reporting particular staff categories (for example occupational therapists) per 100 000 population, without understanding the way in which staff members function in relation to each other, to service facilities and care for patients.

In addition there are limits to reporting staff/population ratios in a blanket fashion when the role of staff is changing. For example, in the context of attempts to integrate mental health care with primary health care provision in South Africa, primary health care nurses are being asked to change their roles and adapt the bio-medical framework within which they have delivered care in the past (Petersen, 1999).

Staff/population ratios are therefore crude measures which do not take account of the complexities of psychiatric illness, variations in psychiatric morbidity, needs of individual patients, the systemic context of care and the changing roles and responsibilities of staff (Bhaskara, 1999). The following are among the factors that need to be kept in view when interpreting staff/population ratios:

1. staff type;
2. level, quality and appropriateness of training;
3. systemic issues such as skill mix, supervision, support, and referral procedures;
4. clinical policies and practice guidelines or practice parameters;
5. management and health policy; and

6. the quality of care offered.

Other indicators such as bed/population ratios, the distribution between hospital and community services, bed occupancy rates, admission rates, length of stay, readmission rates, and default rates all have a bearing on staffing requirements. Furthermore, as populations (the denominator of staff/population ratios) are likely to vary between areas in their demographic, social and economic characteristics, caution should be exercised when comparing staff/population ratios between areas.

As an introduction to the global picture of mental health staff distribution, the World Health Report 2001 reports a wide disparity in the type and numbers of the mental health workforce worldwide. The median number of psychiatrists varies from 0.06 per 100 000 population in low-income countries to more than 10 per 100 000 population in high-income countries. The median number of psychiatric nurses ranges from 0.1 in low-income countries to 33.5 per 100 000 in high-income countries. The workforce likely to be involved in mental health care globally includes general doctors, psychiatrists, neurologists, nurses, occupational therapists, psychologists and social workers. In many settings other groups such as ministers of religion and traditional healers may provide care (WHO, 2001c).

2.2.3.2 Staff/population ratios in developed countries

Studies reporting staff/population ratios per 100 000 population in developed countries are summarised in Table 2.7. Compared to the wide variety in global levels for staffing reported by the WHO (WHO, 2001c), there is greater consistency among developed countries. Countries such as Australia, Sweden and the USA report relatively high numbers of psychiatrists per population unit. The variety in figures reported by the same country (e.g., the USA and UK) indicates the importance of methodology and data sources in calculating staff/population ratios.

The figures in Table 2.7 need to be interpreted in relation to the service context. For example, in the USA, accessibility to psychiatrists may be

limited by financial constraints (Geller, 2000). In the UK, primary care general practitioners (GPs) are usually the first port of call for people with psychiatric disorders (Beecham, 1995). Frequently GPs become involved in treatment of severe psychiatric disorders: one study has indicated that 13% of people with schizophrenia receive their highest level of care from a GP (Kavanagh, Opit, Knapp, & Beecham, 1995). Thus the apparently low psychiatrist/population ratios reported for the UK in Table 2.7 need to be interpreted in the context of relatively well-resourced primary care services.

Table 2. *Staff/population ratios per 100 000 population in developed countries*

Study	Country	Staff/population ratio per 100 000			
		Psychiatrists	Clin. Psych-ologists	Community psych. nurses	Total direct care staff (FTE)
(Australian Department of Human Services and Health, 1995)	Australia				76.5
(Henderson, 2000)	Australia	11.1			
(Holmberg, 1988)	Sweden	12.5			
(Beecham, 1995)	UK	2.2 (1976)			
(Beecham, 1995)	UK	3.1 (1986)			
(White, 1990)	UK			3.21-21.67 (incl. local variation)	
(The Sainsbury Centre for Mental Health, 1995)	UK	2.5			
(Desjarlais et al., 1995)	USA	16-17			
(Ivey, Scheffler, & Zazzali, 1998)	USA	12.5	26.7		
(Koizumi et al., 1992)	Japan	7.08			
(Desjarlais et al., 1995)	New Zealand	5.64			

2.2.3.3 Staff/population ratios in developing countries

As with bed/population ratios, staff/population ratios in developing countries are considerably lower than those in developed countries, and reflect differences in resources and prioritisation of mental health care (Table 2.8).

Figures in Table 2.8 indicate that even among developing countries there is wide variability in staff/population ratios. For example, psychiatrists per 100 000 population vary from 4.44 in Brazil to less than 0.01 in Myanmar and Tanzania. The majority of developing countries have less than one psychiatrist per 100 000 population.

Information on precise staff/population ratios in developing countries is difficult to ascertain, due to underdeveloped information systems and infrastructure. For example, Jegede et al., (1985) report that for Nigeria's estimated population of 80 million there were "fewer than 100 psychiatrists and psychologists" (p 659), a ratio of 0.12 "psychiatrists and psychologists" per 100 000.

A further limitation of the figures in Table 2.8 is that they may not reflect the general health staff who provide mental health care within primary care settings. The WHO has emphasised the role of general health workers in primary care settings (particularly nurses) and the need to train those workers in the detection, management and referral of patients with mental disorders (WHO, 2001c). This approach has yet to be reported systematically in studies of mental health staffing in developing countries.

Table 2.8 Staff/population ratios per 100 000 population in developing countries

Study	Country	Population (million)	Ratio per 100 000			
			Psychiatrists	Clinical psychologists	Psychiatric nurses	Psychiatric Social workers
(Alem, 2000)	Ethiopia	55	0.02			
(Chikara et al., 1991)	Zimbabwe	10	0.1	0.05	6	0.05
(Chikara et al., 1991)	Kenya	24	0.13			
(Chikara et al., 1991)	Mali	6	0.03			
(Desjarlais et al., 1995)	China	Not stated	0.3			
(Desjarlais et al., 1995)	Hong Kong	Not stated	1.24			
(Desjarlais et al., 1995)	Korea	Not stated	1.58			
(Desjarlais et al., 1995)	Malaysia	Not stated	0.28			
(Desjarlais et al., 1995)	Philippines	Not stated	0.03			
(Desjarlais et al., 1995)	Singapore	Not stated	1.49			
(Desjarlais et al., 1995)	Vietnam	Not stated	0.09			
(Iacoponi, Laranjeira, & de Jesus Mari, 1991)	Brazil	Not stated	4.44			
(Okasha & Okasha, 2000)	Egypt	60	1.0	0.42	2.26	0.5
(Orjuela-Mancera & Munoz-Tamayo, 1991)	Colombia	Not stated	3.5			
(Ramana & Saxena, 1991)	India	Not stated	0.23			
(Sugar, Kleinman, & Eisenberg, 1992)	Pakistan	100	0.1			

Table 2.8 Staff/population ratios per 100 000 population in developing countries (cont'd)

Study	Country	Population (million)	Ratio per 100 000			
			Psychiatrists	Clinical psychologists	Psychiatric nurses	Social workers
(WHO, 1996a)	Albania	Not stated	0.9		3.0	
(WHO, 1996a)	Myanmar	Not stated	0.1	<0.01	0.3	
(WHO, 1996a)	Sri Lanka	Not stated	0.2			
(WHO, 1996a)	Yemen	10.4	0.24			
(WHO, 1996a)	Belize	0.235	0.85		5.1	
(World Psychiatric Association, 1996)	Botswana	1.5	0.33	0.07	3.66	
(World Psychiatric Association, 1996)	Eritrea	3	0.03	0.03	0.23	
(World Psychiatric Association, 1996)	Mozambique	15	0.03	0.03	0.23	
(World Psychiatric Association, 1996)	Nigeria	106	0.07	0.01	6.79	
(World Psychiatric Association, 1996)	Swaziland	1	0.1	0.1	3	
(World Psychiatric Association, 1996)	Tanzania	29	0.03	<0.01	4.24	
(World Psychiatric Association, 1996)	Uganda	17	0.06	0	0.76	
(World Psychiatric Association, 1996)	Zambia	10	0.05	0.02	0.02	

2.2.3.4 Staff/population ratios in South Africa

According to Lee and Zwi (1997), the total number of mental health personnel registered with professional boards in South Africa is as follows: psychiatrists (excluding registrars) - 427; clinical psychologists - 1 051; psychiatric nurses - 26 825; and social workers - 9 700. These figures include those working in both the public and private sectors, since no breakdown in this respect is available from the professional boards. As an indication of this breakdown, Emsley has reported that 56% of South African psychiatrists work in private practice (Emsley, 2001).

Freeman and Pillay (1997) provide a more detailed breakdown of public sector mental health personnel by provinces (Table 2.9). As with bed/population ratios, there is evidence of significant maldistribution between provinces. Gauteng and the Western Cape appear to have the highest numbers of public sector psychiatrists, with 57 and 62 respectively: 119 out of the total of 155 public sector psychiatrists in the country.

It is also clear from Table 2.9 that the vast majority of mental health personnel in public sector settings are located within hospitals, with the exception of nurses in the Northern Province. This distribution does not compare unfavourably with the UK, where, for example, approximately 15% of nursing staff in districts are employed in community settings (Gilchrist & Knapp, 1994), compared to 20.1% in South Africa. However, comparability with UK does not justify the current distribution, particularly in the context of the current policy emphasis on the provision of community-based mental health care. Variations between provinces imply that some provinces have considerably lower community nursing staff numbers than the national average.

Table 2.9 Public sector mental health personnel by province according to Hospital (H) and Community (C) services (Freeman & Pillay, 1997)

Province	Setting	Psychiatrists	Registrars	Clinical Psychologists	Clinical psychology interns	Occupa-tional therapists	Social workers	Nurses *	Nursing Assistants	Medical officers
Gauteng	Hospital	52	34	44	30	48	41	530	0	0
	Comm.	5	4	4	3	4	0	100	0	0
	Total	**57**	**38**	**48**	**33**	**52**	**41**	**630**	**0**	**0**
Northern Province	Hospital	0	0	1	0	1	26	149	185	52
	Comm.	1	0	6	0	11	17	293	195	13
	Total	**1**	**0**	**7**	**0**	**12**	**43**	**442**	**380**	**65**
Mpuma-langa	Hospital	0	0	1	0	5	0	178	0	0
	Comm.	1	0	1	0	2	12	30	0	0
	Total	**1**	**0**	**2**	**0**	**7**	**12**	**208**	**0**	**0**
North-West	Hospital	1	0	0	0	0	0	0	0	0
	Comm.	0	0	0	0	0	0	0	0	0
	Total	**1**	**0**	**1****	**0**	**1****	**3****	**59****	**133****	**6****
Free State	Hospital	3	16	8	5	11	9	154	261	4
	Comm.	0	0	1	0	0	1	23	1	0
	Total	**3**	**16**	**9**	**5**	**11**	**10**	**177**	**262**	**4**
Northern Cape	Hospital	0.5	0	1	0	1	1	16	41	0
	Comm.	0.5	0	0	0	0	0	16	0	0
	Total	**1**	**0**	**1**	**0**	**1**	**1**	**32**	**41**	**1**

* Nurses in this diagram are not specified according to psychiatric training. The precise definition of "community" services is not provided.

** Errors in totals reflect reported figures (e.g., 3 social workers who are neither in Hospital nor Community services are reported for North-West province; there are reportedly 73 social workers in community services in the Eastern Cape).

Table 2.9 *Public sector mental health personnel by province according to Hospital (H) and Community (C) services (Freeman & Pillay, 1997) (cont'd)*

Province		Psychiatrists	Registrars	Clinical Psychologists	Clinical psychology interns	Occupa-tional therapists	Social workers	Nurses	Nursing Assistants	Medical officers
Eastern Cape	Hospital	9	0	11	10	10	15	575	1060	25
	Comm.	0	0	2	0	1	73	4	1	0
	Total	**9**	**0**	**13**	**10**	**11**	**16****	**648**	**1064**	**26**
Western Cape	Hospital	56	49	50	21	49	52	860	1024	16
	Comm.	6	0	5	2	3	3	83	8	2
	Total	**62**	**49**	**55**	**23**	**52**	**55**	**943**	**1032**	**18**
KwaZulu-Natal	Hospital	16	11	20	10	10	14	552	669	20
	Comm.	4	0	5	0	3	6	75	6	68
	Total	**20**	**11**	**25**	**10**	**13**	**20**	**627**	**675**	**128**
Total	Hospital	137.5	110	136	76	135	158	3014	3240	117
	Comm.	17.5	4	24	5	24	112	624	211	83
	Total	**155**	**114**	**161**	**81**	**160**	**201****	**3766**	**3587**	**248**

** Errors in totals reflect reported figures (e.g., 3 social workers who are neither in Hospital nor Community services are reported for North-West province; there are reportedly 73 social workers in community services in the Eastern Cape).

Combining the above figures with population figures per province based on the 1995 census figures (Lee and Zwi, 1997) yields the staff/population ratios per 100 000 displayed in Table 2.10. The staff/population ratios clearly indicate the seriousness of the current situation. Provinces such as Mpumalanga, with a population of nearly 3 million people have 1 psychiatrist, 2 psychologists and 12 social workers. Even within relatively well-resourced provinces such as the Western Cape, Ensink et al., (1997) have argued that staffing levels should be increased, particularly to provide training and supervision at primary care level.

For nurses, apart from the outlying figures for the Western Cape and North West Province, there does appear to be some level of consistency in the number of staff available per 100 000 population. This is particularly important in the light of proposals to grant nurses greater autonomy in the management of patients with psychiatric disorders, including the granting of prescription privileges (Freeman et al., 1997). However, as Freeman and Pillay note, these proposals are limited by the numbers of skilled specialist staff who can provide support and supervision to general health workers in primary care.

A limitation of the data reported by Freeman and Pillay (1997) is that it is not clear whether the nurses are psychiatric nurses, or general nurses with some psychiatric training who provide a mental health service. It is possible that some nurses may spend only part of their time in mental health service provision. There is currently no estimation of full-time equivalent (FTE) staffing, which limits an accurate estimation of current mental health staffing and indeed of possible requirements in future.

Table 2.10 Public sector mental health staff population ratios per 100 000 population in South Africa by province as reported in the literature (Freeman & Pillay, 1997; Lee & Zwi, 1997)

Province	Popula-tion	Ratio								
		Psychiatrists	Registrars	Clinical Psychologists	Clinical psychology interns	Occupa-tional therapists	Social workers	Nurses	Nursing Assistants	Medical officers
Gauteng	7637100	0.75	0.5	0.63	0.43	0.68	0.54	8.25	0	0
Northern Province	5071300	0.02	0	0.14	0	0.24	0.85	8.72	7.49	1.28
Mpuma-langa	2839300	0.04	0	0	0	0.25	0.42	7.33	0	0
North-West	3339700	0.03	0	0.03	0	0.03	0.09	1.77	3.98	0.18
Free State	2756000	0.11	0.58	0.32	0.18	0.4	0.36	6.42	9.51	0.15
Northern Cape	720000	0.14	0	0.14	0	0.14	0.14	4.44	5.69	0.14
Eastern Cape	6544200	0.14	0	0.2	0.15	0.17	0.24	9.9	16.26	0.4
Western Cape	3782300	1.64	1.3	1.45	0.61	1.37	1.45	24.93	27.28	0.48
KwaZulu-Natal	8552500	0.23	0.13	0.29	0.12	0.15	0.23	7.33	7.89	1.5
Total	**41242400**	**0.38**	**0.28**	**0.39**	**0.2**	**0.39**	**0.49**	**9.13**	**8.7**	**0.60**

The above data (Table 2.10) refer to staff in the public sector. Flisher et al., (1997) conducted a postal survey of all psychiatrists registered with the South African Medical and Dental Council in 1993. They reported that there were 261 psychiatrists practising in South Africa who were inequitably distributed between the provinces (Table 2.11). Only 11% could communicate in an African language and only 7% lived in rural areas where over half the population lives.

*Table 2.11 Psychiatrist to population ratios in South African provinces in 1993 (Flisher et al., 1997)**

Province	Practising psychiatrists	Psychiatrists per 100 000 population
Gauteng	108	1.57
Western Cape	89	2.47
KwaZulu-Natal	31	0.36
Eastern Cape	13	0.20
Free State	8.5	0.31
Northern Cape	2.5	0.36
Mpumalanga	2	0.07
North-West	2	0.06
Northern Province	1	0.02
National mean	28.6	0.64

* Data refer to both the public and private sectors

Finally, Ensink et al., (1997) reported on public sector mental health professionals in the Western Cape in 1992/3. The staff/population ratios were as follows: psychiatrists - 1.8 per 100 000 population; psychologists - 1.6; all categories of nurses - 52.7; nurses excluding assistants - 24.7; social workers - 1.4; and occupational therapists - 1.4. These figures are compatible with those based on the data of Lee and Zwi (1997) reported above. Ensink et al., (1997) also documented that about 95% of public sector mental health professionals

in the Western Cape were deployed in hospital settings and only 5% in community settings.

2.2.3.5 Staff/population ratios: conclusions

The findings from the literature indicate that developed countries and some developing countries have relatively well resourced mental health staffing compared to South Africa. Past South African research indicates wide discrepancies in levels of mental health staffing within the country. There is a need for current data to provide an accurate indication of mental health staff available within public sector services in South Africa. This is necessary both to allow for effective planning and to provide a database from which norms can be developed.

2.2.4 Staff/patient ratios

Having discussed the global figures of bed/population and staff/population ratios, the calculation of staff/patient ratios allows a more specific focus on the human resource requirements for the care of patients with severe psychiatric conditions (SPC). The complexities of staffing have concerned mental health planners for some time. As one commentator has put it (Aydelotte, 1973):

> *"The perplexing questions about staffing requirements and nurse power usage arise from several sources. The number of variables with which one must deal is almost incomprehensible and, for the most part, the nature of these variables appears to defy description and quantification. There is little agreement in the literature on the nature and characteristics of some very evident variables: nursing practice, patient needs, quality of care and control, complexity of care, intensity of care, and levels of practice"* (p59).

It has been argued that the complexity referred to in Aydelotte's statement continues to trouble human resource planners in mental health care (Way, Braff, Hafemeister, & Banks, 1992). Added to this are the changing conditions under which care is delivered. Deinstitutionalisation has changed the numbers of available psychiatric staff (Raftery, 1992) and the role they play in both hospital and community settings (The Sainsbury Centre for Mental Health, 1995; Hannigan, 1998).

Within the shifting ground of mental health care, it has become important to provide a measure that indicates numbers of available staff per patient. This is needed not only to provide a measure of the human resources required per service user, but also to provide some indication of the intensiveness of care required in particular settings (for example, acute versus long stay inpatient settings). Staff/patient ratios have provided a useful indicator in this regard.

The usefulness of this indicator lies at least partially in its flexibility. It can be used as a global measure (e.g., the ratio of all psychiatric staff to all patients) or as a relatively specific measure (e.g., the ratio of psychiatrists to patients in acute inpatient facilities). This becomes particularly pertinent in the calculation of staff requirements for the care of a specific patient population such as those with severe psychiatric conditions.

As with bed/population and staff/population ratios, however, caution needs to be exercised in the use and generalisability of staff/patient ratios. These ratios must be informed by such factors as: (a) the nature of the psychiatric facility in which staff are located; (b) the utilisation of both hospital and community level mental health services; (c) the quality of care which is offered, and (d) other indicators which inform staffing such as bed/population ratios, length of stay, admission rate, readmission rate, default rate and bed occupancy rate. Other variables which should be considered in determining staff/patient ratios are: therapeutic expectations; severity of illness; level of staff training; level of staff skill or talent unrelated to training; role of non-professional personnel, volunteers and family; number and severity of untoward incidents on the unit; and ethical and humanitarian considerations (Sacks, 1992). In addition the accuracy of the denominator (number of patients) and the reliability of information systems need to be kept in view when considering staff/patient ratios.

The importance of these considerations is given support by recent findings that in well coordinated mental health services, staff/patient ratios alone do not necessarily affect service utilisation or clinical and social functioning in community care settings. Burns et al., (1999) randomly assigned 708 psychotic patients in 4 centres in the UK to standard case management (caseload: 30-35 patients) and intensive case management (caseload: 10-15 patients). After 2 years there was no significant decline

in hospital use among intensive case management patients (mean 73.5 versus 71.5 days admission for standard care patients) nor were there any significant gains in clinical or social functioning (Burns et al., 1999). The authors conclude that in well-coordinated mental health services, reduction in caseload alone does not lead to improved outcome for psychotic patients. They state, furthermore, that planners need to pay more attention to the content of treatment than changes in service organisation.

There are, in addition to these considerations, difficulties with terminology with this indicator. It has been argued that the term "patient" disempowers individuals who make use of mental health services. Other terms such as "user", "client", "consumer", and "survivor" have been suggested. In a study of the terms preferred by service recipients, it was found that 54.8% preferred the term "patient", 28.8% preferred the term "client", 7% preferred "survivor" and 2.8% preferred "consumer" (Sharma, Whitney, Kazarian, & Manchanda, 2000). On the basis of this finding and its common use in the service planning literature, the term "patient" will be used in this thesis, although this is interchanged with service "user" at times.

In the following section, literature on staff/patient and staff/bed ratios will be reported. This is done for two reasons: (1) in the literature, staff/bed ratios are often reported for inpatient settings, instead of staff/patient ratios; and (2) in this study, staff/bed ratios will be used instead of staff/patient ratios in inpatient settings, for methodological reasons indicated in chapter 3.

2.2.4.1 Staff/patient ratios in developed countries

In the context of deinstitutionalisation in most developed countries, staffing patterns have changed. This is clearly reflected in staff/patient ratios, although the effect appears to vary according to whether staff are located in hospital or community settings. In hospital settings, with shrinking bed/population ratios, staff/patient ratios in developed countries have actually increased, in spite of budgetary pressures. For example, in the USA, the total number of staff per patient rose from 0.9 in 1973 to 1.5 in 1983. The staff/patient ratio in England increased in the same period to exceed 1.0 in 1986, with staff numbers increasing by 34% (Raftery, 1992). Conversely, in community mental health settings, the number of patients served per full-time equivalent (FTE)

psychiatrist in the USA more than doubled between 1974 and 1979, from 347 to 731, indicating a decrease in the staff/patient ratio, from 0.0029 to 0.0014 (Goldman, Faulkner, & Breeding, 1994).

These figures may reflect a number of trends: (1) staff numbers in hospital settings have not decreased with decreased beds, and staff have tended to remain in ever-dwindling hospital services, rather than making the transition to the community with their deinstitutionalised patients; (2) patients who are admitted to hospitals have increasingly needed more intensive care on average, requiring higher staff/patient ratios.

In this process, psychiatric staff have had to face shifting roles and problems of morale and motivation. Hospital settings have endured budget cuts and community settings have not been developed to keep pace with the downscaling of hospital services. The Sainsbury Centre for Mental Health (1995) has explored the effect of changes in bed/population ratios on staff roles in the UK. The authors point out that although there would not be significant cuts in the numbers of staff by the year 2000, significant shifts in staffing patterns were anticipated. Trends and demands for mental health nurses, for example, include:

- a change in skill mix, with an increased use of unqualified staff;
- demands for forensic and community staff, particularly community psychiatric nurses; and
- considerable need for re-training because neither hospital-based nor community-based nurses are equipped for caring for people with serious mental illness in the community.

In order to explore these changes in more detail, staff/patient ratios in hospital and community settings will now be discussed.

2.2.4.1.1 Hospital settings

Studies reporting staff/patient or staff/bed ratios in developed countries are summarised in Table 2.12. Of note in the total staff/bed ratios are the low staff/bed ratios in Japan, which together with evidence of the high bed/population ratios reported in section 2.2, implies a custodial pattern of care with less staff-patient contact than other developed countries. For the period 1983-86, UK health authorities indicated an average 1:1 ratio for nurse to bed (excluding managers and tutors) for both mental handicap and psychiatric hospitals (Department of Health and Social Security (DHSS), 1988).

Table 2.12 Psychiatric staff/patient and staff/bed ratios in developed countries

Study	**Country**	**Staff/patient (s/p) and staff/bed (s/b) ratios**			
		Psychia-trists	Medical Officers	Psychiatric nurses	**Total Staff**
DHSS (1988)	UK (1983-1986)			1.0 (s/b)	
(Crepet, 1990)	Italy (1978)	0.031 (s/p)		0.46 (s/p)	
(Crepet, 1990)	Italy (1986)	0.032 (s/p)		0.45 (s/p)	
(Koizumi et al., 1992)	Japan				0.22 (s/b)
(Koizumi et al., 1992)	USA				2.67 (s/b)
(Koizumi et al., 1992)	Sweden				1.74 (s/b)
(Koizumi et al., 1992)	France				1.37 (s/b)
(Koizumi et al., 1992)	Germany				1.13 (s/b)

Studies show clearly that hospital staff/patient ratios are influenced by the particular setting in which care is delivered. For *acute* facilities, 368 mental health residential care centres in eight districts of England and Wales reported an average staff/patient ratio of 1.27 for all staff.

For *long-stay* facilities in the same eight districts, the staff/patient ratio was 0.95, reflecting the less intensive nature of the care required (Lelliot et al., 1996).

2.2.4.1.2 Community and Outpatient (Ambulatory) settings

Staff/patient ratios in community and outpatient settings are generally lower than those in hospital settings, implying that staff can care for more patients at any one time. For example, it was reported that in 12 community support programmes in small cities and rural areas in Wisconsin, there was an average FTE caregiver to client ratio of 1 to 13 (including administrative and professional staff) (staff/patient ratio: 1/13 or 0.08). Each programme served a mean of 99 clients. Professional FTE caregiver to client ratio was 1 to 23 (staff/patient ratio: 0.04). This caseload was found to be within Wisconsin's 1989 legislation for certification of community support programmes which established a standard ratio of one credentialed staff person for every 20 clients (Staff/Patient ratio: 0.05) (Hollingsworth, Pitts, & McKee, 1993). This is a clear example of the way in which indicators have been used to provide legislated accreditation of services.

The staff/client ratios for Wisconsin were reported to be similar to those for assertive community treatment programmes in community mental health centres in Indiana and Michigan, but different to programmes in other American states, which had fewer clients per staff member. Hollingsworth et al., (1993) conclude that concerns in the literature about heavy caseloads in rural areas were not confirmed in this study's sample. Nevertheless it was found to be true that staff in rural areas are generally less experienced, less educated, have lower professional status and earn less than staff in non-rural programmes. The authors warn that these factors do not necessarily mean a lower quality of care delivery.

Community Mental Health Teams (CMHTs) are common in the UK: in 1993, 517 such teams were identified in 144 district health authorities

(Beecham, 1995). In a survey of CMHTs operating in England 44.4% were found to be based at Community Mental Health Centres (CMHCs), 14.2% at inpatient unit or hospital site, and 9.3% at day centres or day hospitals. Although details of the numbers of patients served by a team are not provided, the percentage of teams containing each category of mental health professional are as follows: community psychiatric nurses - 93.4; social workers - 86.1; administrative staff - 85.4; nurses (other than community psychiatric nurses) - 33.8; occupational therapists - 68.9; generic/support workers - 37.7; consultant psychiatrists - 79.1; other doctors - 67.5; clinical psychologists - 71.5; others - 27.8; other specialist therapists - 31.8; and volunteer staff - 13.9 (Onyett, Heppleston, & Bushnell, 1994). In a Cochrane review, CMHTs have been shown to be not inferior to "non-team" standard care in any important respects, and superior in promoting greater acceptance of treatment. There have also been suggestions that CMHTs may be superior in reducing hospital admission and avoiding death by suicide (Tyrer, Coid, Simmonds, Joseph, & Marriott, 2000).

2.2.4.2 Staff/patient ratios in developing countries

Few data have been reported on staff/bed or staff/patient ratios in developing countries. The following staff/bed ratios were reported by delegates attending a conference on the promotion of psychiatry and mental health care in Africa organised by the World Psychiatric Association in 1996 (Table 2.13). It was not clear from the conference report whether the staff reported in these figures work exclusively in inpatient settings, and therefore whether the staff/bed ratios are accurate. There is wide variety in staff/bed ratios in these countries, with particularly low nurse/bed ratios in Eritrea, equivalent to one psychiatric nurse for every 333 beds. It was also not clear from the conference report whether other general nurses are involved in the provision of inpatient care, and therefore what the total nurse/bed ratio is in these hospital settings. The limitations of this data highlight the importance of accurate information systems in calculating useful indicators for mental health services.

Table 2.13 Staff/bed ratios in developing countries

Study	Country	Beds	Staff/bed ratios		
			Psychia-trists	Clinical psychologists	Psychia-tric nurses
(World Psychiatric Association, 1996)	Botswana	162	0.03	0.006	0.34
(World Psychiatric Association, 1996)	Eritrea	2400	0.0004	0.0004	0.003
(World Psychiatric Association, 1996)	Kenya	3000	0.02	0.002	0.37
(World Psychiatric Association, 1996)	Mozambique	460	0.009	0.01	0.07
(World Psychiatric Association, 1996)	Nigeria	4000	0.02	0.004	1.8
(World Psychiatric Association, 1996)	Swaziland	150	0.007	0.007	0.2
(World Psychiatric Association, 1996)	Tanzania	1600	0.006	0.001	0.77
(World Psychiatric Association, 1996)	Uganda	600	0.02	0	0.22
(World Psychiatric Association, 1996)	Zambia	470	0.01	0.004	1.36
(World Psychiatric Association, 1996)	Zimbabwe	1720	0.006	0.02	0.29

2.2.4.3 Staff/patient ratios in South Africa

Ensink et al., (1997) conducted the only South African study in which staff/patient or staff/bed ratios in psychiatric inpatient settings were addressed. They reported that the nurse/bed ratio in the Western Cape was 1 nurse to 2.2 beds (nurse/bed ratio: 0.45) in 1993. This is approximately half that of inpatient facilities in the UK (see above). Ensink et al., (1997) and Lee et al., (1997) point out that the Western Cape mental health services have been among the best resourced services in South Africa, providing some indication of the gap between most South African mental health staffing levels and those in the UK and other developed countries.

2.2.4.4 Staff/patient ratios: conclusions

In spite of the limitations of staff/patient ratios, this indicator provides a useful measure of the human resources required per patient in both hospital and community settings. Studies indicate that staff/patient ratios in developed countries have changed markedly during the course of deinstitutionalisation. While staff/patient ratios in hospitals have increased, staff/patient ratios in community settings have decreased. There is little reliable data available on staff/patient or staff/bed ratios in developing countries, including South Africa. Those data that are available in South Africa indicate low nurse/bed ratios relative to developed countries. There is a need to provide accurate measures of the human resources available per patient and this data has yet to be reported in South Africa.

2.2.5 Community/Hospital ratios

The relationship between community and hospital-based services is complex, and few attempts have been made to measure this relationship. Most authors stress the essential inter-dependence of hospital and community services (Jegede, Williams, & Sijuwola, 1985; Hafner, 1987; Chikara et al., 1991; WHO, 1996b) and several have highlighted the difficulty of measuring the relative need for each (Freeman et al., 1994) and the cost of each (Raftery, 1992; Knapp, Chisholm, Astin, Lelliot, & Audini, 1997). Through the process of deinstitutionalisation, many patients have come to make use of both hospital and community services in a "revolving door" pattern of care (Fisher, Geller, Altaffer, & Bennett, 1992; Geller, 1992; Brenner, Junghan, & Pfannmatter, 2000). Some have argued that policymakers and practitioners remain so myopically focused on the locus of care that they ignore the humaneness, effectiveness and quality of care (Geller, 2000).

Nevertheless, there is some degree of consensus that there is a need for both hospital and community-based services, particularly for the care of people with severe psychiatric conditions (WHO, 1996b; Thornicroft et al., 1999; WHO, 2001b). It has also been thought to be important to measure the relationship between hospital and community services (Raftery, 1992; Knapp et al., 1997). Precisely where hospital services are located (in specialist facilities or integrated within general health care) is

a matter of ongoing debate, although the WHO has encouraged the integration of psychiatric inpatient care into general hospitals (WHO, 2001c). In many instances, the locus of care appears to be dependent on existing resources and historical patterns of care.

There is very little international literature addressing community/hospital ratios specifically. However, several studies have described the relative service use and cost of hospital and community services, while others have attempted to monitor the effect of the introduction of specific forms of community psychiatric services on service utilisation. The following section will provide a review of these studies, as an introduction to some of the issues in the relationship between community and hospital-based services, and an indication of the need for community/hospital ratios. These issues are particularly important in the South African context, where new policy has recommended a process of deinstitutionalisation and the development of community services.

2.2.5.1 Community/hospital ratios in developed countries

Since the 1950s and 1960s, in developing countries, the process of deinstitutionalisation has largely defined the relationship between hospital and community services (Thornicroft et al., 1999). As noted earlier (section 2.3.3), a central problem has been the failure of community service development to keep up with the downscaling of institutional care (Rochefort, 1992):

> *"A common criticism of the deinstitutionalisation effort in the U.S. is that the dollars did not follow as patients left state hospitals for community settings"* (p1087).

As recently as 1986, state and county mental hospitals in the USA continued to absorb 70% of state mental health agency funding. Similarly in Canada, the mean distribution of mental health expenditure for institutional and non-institutional settings was reported to be approximately 75.3% and 24.7% respectively, with only the province of Saskatchewan exceeding 50% expenditure on non-institutional settings (Rochefort, 1992). In terms of staff distribution, in spite of an active programme of deinstitutionalisation, the Australian mental health services have reported that during 1993-1994, 73.4%

of FTE staff were employed in an inpatient service setting, 4.2% in specialist residential services, and only 22.4% in community or ambulatory care (Australian Department of Human Services and Health, 1995). More recently in the USA these patterns have begun to change. In 1993, for the first time, spending on community services surpassed spending on state psychiatric hospitals (McGrew, Wright, & Pescosolido, 1999).

Other commentators have noted that as hospitals have been downsized, prisons have steadily replaced mental hospitals as the provider of institutional care for people with mental health problems (Lamb, 1998). In the USA, estimates are that on any given day, there are twice as many seriously mentally ill patients in prison than in state psychiatric hospitals (Birmingham, 1999). Within prisons in the UK, the quality of mental health care has been found to fall far below standards in the National Health Service (NHS) (Polczyk-Przybyla & Gournay, 1999; Reed & Lyne, 2000).

In spite of the difficulties encountered during the course of deinstitutionalisation, the benefits of community-based care have been well demonstrated. There is clear evidence that community-based residential care is more clinically effective than traditional hospital-based care. Marks et al., (1994) embarked on the first UK trial of intensive home treatment against conventional admission. In a controlled study, they compared the outcomes for patients with serious mental illness (SMI) randomly allocated to home-based (n=92) or hospital-based (n=97) care in an inner London catchment area. Outcome measures included number and duration of inpatient admissions, independent ratings of clinical and social function, and satisfaction of patients and relatives. The authors concluded that although outcomes were superior for home-based care, it was difficult to determine which aspects of home-based care exerted a positive effect. They also emphasised that home-based care requires careful training and clinical auditing to ensure ongoing success (Marks et al., 1994).

In North Staffordshire, UK, the use of community-based residential care was shown to be associated with significantly better outcomes and significant

reduction in unmet need over 12 months (Boardman, Hodgson, Lewis, & Allen, 1999). In North London, the TAPS study found improvements in symptoms, quality of life and social networks among a cohort of 114 patients, 5 years after discharge from long-stay hospitals (Leff, Thornicroft, Coxhead & Crawford, 1994). This finding has been supported by a quasi-experimental longitudinal study in Sydney, Australia that showed that when adequate community services are planned, deinstitutionalisation has good clinical effectiveness (Hobbs et al., 2000). Forty patients were transferred from a long stay psychiatric institution to four community residences, each with 10 beds. Over a 2-year period, patients showed a significant improvement in psychotic conditions and required significantly less neuroleptic medication to manage their conditions. There was a need for inpatient and community support, with 37% of the patients requiring admission at some time during the 2-year study period.

Similarly, in a review of assertive community care programmes in the USA, it was concluded that such programmes are successful in reducing the need for hospital care and in achieving patient and family satisfaction (Mechanic, 1996). In addition, a subset of assertive community care programmes bring about positive gains in patient functioning and quality of life.

These findings are supported elsewhere. Patient satisfaction has been shown to be higher for community-based than hospital-based services in experimental studies in the UK (Boardman et al., 1999) and Australia (Boardman et al., 1999; Hobbs et al., 2000).

These findings are important for their immediate results of demonstrating the improved outcomes of community-based care. However, they do raise the important issue of efficacy versus effectiveness, i.e., whether results of clinical trials for community mental health care can be implemented in routine service delivery (Thornicroft et al., 1999). In the PRiSM psychosis study, Thornicroft and others have demonstrated that health and social gains reported in experimental studies of community mental health services are replicable in ordinary clinical settings (Thornicroft, Wykes, Holloway, Johnson, & Szmukler, 1998). The authors point out that dilution does occur i.e., that gains

in routine service delivery are not as pronounced as those in experimental (efficacy) studies. Nevertheless, they argue that the evidence clearly supports a community-oriented rather than hospital-oriented approach to mental health care, and that community-based care is not only more efficacious but also more effective than hospital-based care. This is supported by independent studies which have shown that patient satisfaction is higher for community-based services in routine service delivery (Martinsen, Ruud, Borge, Watne, & Friis, 1998; Henderson, Phelan, Loftus, Dall'Agnola, & Ruggeri, 1999).

In spite of the course of deinstitutionalisation, it is only recently that studies have compared the relative cost of community and traditional hospital treatment programmes. In an examination of the service use and cost of home-based (Daily Living Programme (DLP)) versus hospital-based care for people with serious mental illness, it was concluded that the home-based care was significantly less costly than standard treatment in both the short and medium term. Cost measures included all service inputs, living expenses, costs of informal care and lost employment. This finding, together with evidence of efficacy of the home-based programme (Marks et al., 1994), enabled the authors to conclude that home-based care was cost-effective, at least in the medium term (Knapp et al., 1994). In a follow-up to this study, the same cohort was tracked over 4 years. Although the DLP group was more cost-effective than control care over the full 45-month period, there was less difference between the groups by month 45 than in the first 20 months. This was attributed to some attenuation in the DLP care, and the under-powering of some comparisons due to sample attrition (Knapp et al., 1998).

In spite of these findings, it has been stressed repeatedly that deinstitutionalisation is not a cost-saving exercise, and reduction in hospital services should be accompanied by assertive development of community-based care (Thornicroft et al., 1999). Efforts to cut costs by reducing hospital bed numbers have been greeted with criticism. As Knapp et al., (1997) argue, the reduction of psychiatric hospital beds is not a panacea for an appropriate balance in mental health care, partly because of the extent of unmet need for services.

This is supported in a review of the deinstitutionalisation programme in Emilia-Romagna, Italy, where it has been stressed that community care is not necessarily an inexpensive solution (Fioritti et al., 1997). The authors estimated that the total mental health budget costs and the percentage of total health budget dedicated to mental health in Emilia-Romagna had remained stable throughout the reform of the services. In other areas of Italy, the community psychiatric service was considered to be "somewhat less costly", although the management of certain difficult individual patients can be more expensive than in the hospital system. This has been supported by the North Staffordshire study in the UK, in which the addition of community residential places was shown to increase the total cost of services, depending on the effectiveness with which these places were integrated into existing care programmes (Haycox et al., 1999).

The finding that deinstitutionalisation can increase the cost of care in certain respects has been further supported by a study of the closure of a 500-bed state psychiatric hospital in Philadelphia, USA. After the state hospital closed, there was an increase in the direct treatment cost of an episode of care and in the average annual cost of care per patient, because of an increase in acute care hospitalisation (Rothbard, Schinnar, Hadley, Foley, & Kuno, 1998). The study suggests that costs are increased because of an increased emphasis within the hospital budget on acute care. The authors conclude that an "admission" cohort of seriously mental ill patients requires an optimal mix of acute care, extended care, residential beds and ambulatory care in order for cost-efficient care to be delivered during a crisis period.

The increased costs for acute care, however, need to be viewed in the light of savings on former long-stay patients. For patients discharged from the same Philadelphia State hospital, mental health service utilisation and costs during a 3-year follow-up were compared with costs if the patients had remained in hospital. The authors concluded that most former long-stay patients were able to live in the community while receiving community outpatient treatment and

intensive case management services at a reduced cost (Rothbard, Kuno, Schinnar, Hadley, & Turk, 1999).

In Northeast Spain, an analysis was conducted of the cost-incidence of schizophrenia in two areas with widely differing health services. Direct costs were higher in the area that lacked well-developed community mental health services, mainly due to increased hospitalisation (Salvador-Carulla et al., 1999).

Mechanic (1996) supports these findings in his review of assertive community care programmes in the USA. He argues that although these programmes bring about significant treatment cost savings, this is offset by increases in other (non-treatment) costs. Mechanic (1996) concludes, "the best research suggests that the approach has a positive cost-benefit outcome, although it is not necessarily less expensive than traditional care" (p 373).

In addition to these considerations, potential cost reductions of community-based care are limited by specific variables of the service setting. This was demonstrated in a randomised control trial of two models of care (community multidisciplinary teams and hospital-based care programmes) for discharged psychiatric patients in London (Tyrer et al., 1998). While clinical outcomes for the two groups were essentially similar and there were fewer admissions in the community group, the results were overshadowed by marked cost differences between the two areas in which the study was set (inner and outer London). The extra cost was attributed to the lack of available beds in the outer London setting, which required the use of extracontractual referrals to other hospitals.

Further examinations have been conducted of the service utilisation effect of the introduction of a community mental health (CMH) centre, with an emphasis on outpatient services for long term psychotic patients (Stefansson, Cullberg, & Steinholtz Ekecrantz, 1990). The context was a defined catchment area of 75 000 inhabitants near Stockholm, Sweden. During the 9 years following the establishment of the CMH centre, 3 inpatient wards (with

a total of 58 beds) were added to the centre. Emergency cases were redirected to primary care services or to the emergency department of a general hospital, and the number of doctors in the CMH centre increased 4 fold. Table 2.14 shows selected trends over a 9-year period.

Table 2.14 *Numbers of patient visits and admissions for 1975-76 and 1984-85 with relative differences between periods and ratios of inpatient to outpatient utilisation (Stefansson et al., 1990).*

Service	1975-1976	1984-1985	Relative difference (%)
Outpatient utilisation (visits)	20 224	26 815	+33
Inpatient utilisation (admissions)	886	1063	+20
Inpatient/community ratio	4.3/100	3.9/100	-9

During this period there were significant shifts in the diagnostic profile of patients attending the CMH centre. There were decreases in service use by first time users (-54%), patients from lower social groups (-53%) and those with crisis diagnosis (-71%), while the number of patients with psychoses increased (+26%).

The study by Stefansson et al., (1990) provides an indication of the fluidity of patients' service utilisation across hospital and community settings, as well as the range of factors that influence this process. More importantly for understanding the relationship between hospital and community service utilisation, the study indicates that while inpatient/community ratios changed relatively little, there were a complex array of factors that underpinned these changes. In short, the ratio of hospital to community psychiatric services must be supplemented with an understanding of the details of the nature of the service being provided, the diagnostic spread of the patients, their socio-economic status, clinical practice beliefs, policy issues and financial constraints.

2.2.5.2 Community/hospital ratios in developing countries

In developing countries, few studies were found which compared the relative service use of hospital and community-based care. No controlled studies could be found which compared the cost or effectiveness of hospital and community-based care.

The effectiveness of community mental health services in Shanghai has been examined, without comparing these specifically to hospital services. In a case-control study, patients who participated in any of 3 community interventions were compared with those who received no community intervention. The community interventions included: (a) a community follow-up programme in psychiatric outpatient clinics at primary level general hospitals; (b) "guardianship networks" operated by non-professional volunteers; and (c) work therapy stations. Over a period of 2 years, symptoms and social functioning improved dramatically in the treatment groups (Zhang, Yan, & Phillips, 1994).

There are several descriptive studies of deinstitutionalisation programmes in developing countries. Zimbabwe has established a national system of primary health clinics, in an attempt to reverse the pattern of centralised psychiatric care in urban areas. The functions of the clinics include screening of common mental disorders, community education and prevention. In addition to two psychiatric nurses assigned to each province, there are two psychiatric nurses in each of the country's 55 districts (Chikara et al., 1991).

In Botswana, community psychiatric services introduced in 1977 led to halving of annual admissions to the single mental hospital (Ben Tovim, 1987). Inpatient numbers dropped from a high of 500 during the 1960s and 70s to between 100 and 120. Costs for mental health care decreased. Crucial to the success of the programmes were strongly established extended family networks, a system of 300 community level Family Welfare Educators (FWEs) to supplement the existing one psychiatrist and 8 psychiatric nurses.

In Nicaragua, substantial changes in mental health care followed the 1979 political revolution. Beds in psychiatric institutions were reduced from 2600 to 1200 between 1979 and 1987 (Vogelman, 1988). Community involvement centered around 15 mental health centres, which served dual functions of catering for community follow-up and treatment of severely disturbed psychiatric patients; as well as crisis intervention and treatment for less severe conditions. In a separate study, it was found that these centres were used for the following reasons: psychiatric (36%), family conflict (15%), war related problems (14%), alcoholism (9%) and other (26%). General hospitals were also used as referral centres (Kruady, Liberati, Asioli, Saraceno, & Tognoni, 1987). It has been argued that the success of the 'new model' of mental health in Nicaragua was based on psychology, social work and community work, rather than just psychiatry (Vogelman, 1988).

In Jamaica, between 1960 and 1990 there has been a relatively successful shift from hospital- to community-based care (Hickling, 1994). In addition to reduced bed/population ratios and admission rates, the percentage of patients seen at clinic level in 1990 was 10% higher than in 1975, although the actual number of patients treated had fallen by 6% over that period. Nearly three times as many patients were seen in home visits in 1990 compared to 1975, and transfers to Jamaica's single psychiatric hospital fell by 79% over the same period.

Several studies have indicated the importance of drawing on traditional support systems as an adjunct to formal psychiatric care. The importance of family involvement in support of patients with chronic mental illness in developing countries has been emphasised. In a study of 226 patients in a long-term care unit in Nigeria, discontinuation of visits from members of the extended family contributed to long or indefinite patient stays (Jegede et al., 1985). It has been suggested that because many Nigerian patients' family members play an important role in patients' decisions about the kind of practitioners to consult, psychiatric care in that country could be improved by training primary health care workers to give mental health education to the communities and families they serve (Abiodun, 1995). In Jamaica, the

deinstitutionalisation process has had to rely on extended families to act as responsible case managers and provide supervised community housing (Hickling, 1994). In the development of an integrated and comprehensive public mental health programme in Guinea-Bissau from 1983 to 1994, most of the services were provided by 850 primary health care workers (De Jong, 1996). De Jong demonstrates the importance of sound epidemiological research, government supported interventions and alliances with local healers in the development of the service.

Jegede et al., (1985) also stress the importance of traditional and religious healers in providing mental health care when this is not available from western psychiatry. Chikara et al., (1991) support the role of traditional healers in the provision of mental health care and the integration of beliefs about mental health into the cultural and religious belief system in Zimbabwe. This is in spite of the fact that traditional healers remain separate from government hospitals and clinics. Freeman et al., (1994) echo the importance of culture-specific community interventions especially in developing countries with fewer facilities, for example Botswana and Nicaragua.

2.2.5.3 Community/hospital ratios in South Africa

In South Africa, the model of community-based service delivery has been pioneered in "the Free State model" (Gagiano, 1990; Gagiano & le Roux, 1995; Freeman et al., 1999a; Freeman et al., 1999b; Lee et al., 1999a; Lee et al., 1999b). From 1985, the Free State reduced its institutional and tertiary bed numbers by more than 90%, and increased community care through the development of services at clinic level. Community consultations increased from an average of a little over 1000 people consulted per month, to over 5000. The decentralisation of services, and the development of mental health care in secondary services have improved patient access considerably, although Freeman et al., (1994) have commented on the ongoing difficulties of developing racial equity.

In the post-apartheid era, this model of reduced long-term hospital care, with the development of community services and acute beds in secondary hospitals,

has been framed in national policy (Department of Health, 1997). Some recent work has been commissioned by the Department of Health to assess the potential for deinstitutionalisation in two large South African institutions: Tower hospital in the Eastern Cape and Madadeni hospital in KwaZulu-Natal (Dartnall, Modiba, Porteus, & Lee, 1999). The authors emphasise the dangers of rapid deinstitutionalisation without adequately planning for the service and facility needs of chronically mentally ill patients in the community. Thom (2000) has stressed the need for further research into deinstitutionalisation and the development of community-based mental health care in South Africa.

2.2.5.4 Community/hospital ratios: conclusions

While little research has been conducted which directly calculates community/hospital ratios, much of the international literature describes a trend of deinstitutionalisation and the development of community mental health services during the past 40-50 years. This trend, while complex and difficult to negotiate, is seen to make better use of sparse mental health care resources (specifically delivering care at lower cost and with better outcomes) and to respect the rights and humanity of people with severe psychiatric conditions. In South Africa, this model of service delivery has been pioneered in the Free State, and has been framed in national policy.

Until now there have been no indicators developed specifically to measure the relationship between hospital and community services in mental health care in South Africa. There are several advantages to developing and reporting community/hospital ratios that can monitor the relative resources and utilisation of community and hospital services.

- Community/hospital ratios can provide a broad description of the relative utilisation of hospital and community services.
- They can also provide some information on the input (resource) requirements of each.
- They can be used to monitor the planned process of deinstitutionalisation over time. For example, present

community/hospital ratios can serve as an indicator, against which to compare future scenarios. It can be argued that such measures are useful to avoid repeating the mistakes of developed countries, where community service development has often failed to keep pace with the downscaling of psychiatric institutions.

- Community/hospital ratios can be compared across provinces, providing a summary of the relative emphasis a provincial service places on hospital or community services. This can assist with the development of national equity.

2.2.6 Bed occupancy rates

The bed/population, staff/population, staff/patient and some of the community/hospital ratios discussed so far, are all indicators of the allocation of resources, or *input* in mental health care. Bed occupancy rates are indicators of the *process* required to provide service items.

Bed occupancy rate is a gross measure of bed utilisation in a hospital (Monitor Company, 1995). Beyond its use as an indicator in general hospitals, there is precedent in the literature for the use of bed occupancy rate as an indicator of psychiatric care (Powell et al., 1995; Ensink et al., 1997).

According to some authors, bed occupancy rates generally decrease as the level of care of the hospital decreases (Monitor Company, 1995). For example, in most developing countries there is low occupancy at district level. A lower bed occupancy rate also indicates that the average cost of the services being delivered is higher than that of a higher bed occupancy. However, an excessively high bed occupancy rate does not necessarily indicate better hospital performance. If the volume of services exceeds that designed for the facility, the scheduling of service activities, maintenance and management become more costly and difficult. This may lead to other negative consequences such as poor quality service, inadequate staff time spent in contact with patients and increased average length of stay.

As with other indicators, caution should be adopted in using bed occupancy rate as an indicator of levels of care without examining the broader context of inpatient care. The rate of bed occupancy is informed by other input and process indicators including bed/population ratios, staff/patient ratios, lengths of stay, admission rates and readmission rates. In addition, bed occupancy rates are only meaningful if supplemented by information on standards or quality of care, level of staff experience and expertise, practice guidelines, clinical policy, and the available facilities within the inpatient setting (Porteus et al., 1998). This information must be kept in view while comparing bed occupancy rates across different mental health systems, and in assessing the generalisability of particular bed occupancy rates.

2.2.6.1 Bed occupancy rates in developed countries

Bed occupancy levels have become a focus of some attention in developed countries during the deinstitutionalisation era. This is largely because reduced numbers of beds and lengths of stay have increased the pressure on service providers and health managers to make more efficient use of available beds. In some settings, the demands of deinstitutionalisation have stretched acute inpatient facilities to breaking point. For example, it has been reported that the mean bed occupancy for 54 National Health Service acute psychiatric units in 29 districts in London over a 4-year period was 97.5% (Powell et al., 1995). There was significant variability between different areas, with inner London units exceeding 100% occupancy on 49% of occasions. Powell et al., (1995) argue that bed occupancy rates have become unacceptably high and need careful monitoring. They also state that these occupancy rates might lead to a breakdown in the services unless corrective action is taken.

In a review of bed occupancy rates in acute psychiatric inpatient facilities in Northern Ireland, bed occupancy rose across 3 separate years (1987, 1991, 1995) (Kelly, 1998). This increase was associated with a reduction in the number of acute psychiatric beds, reduction in adult continuing care beds, increased recorded referrals to psychiatric units, evidence of considerable increases in new long-stay patients and difficulties with community placements. Acute bed occupancy was reported as being high and continuing to rise, with 100% occupancy in some settings. The authors expressed

concern that if services were not developed, mental health need would inevitably outstrip available services.

In the deinstitutionalisation programme of an Australian mental hospital, the bed occupancy for the entire hospital of 638 beds was 84% at the onset of a deinstitutionalisation programme (James, 1987). This increased to 86% after 5 years of the programme. However, a control hospital, which continued to deliver traditional psychiatric services, maintained exactly the same bed occupancy during the same time period. The small magnitude of the increase in the former hospital limits the conclusions one can draw from this study.

In a recent survey of medium-secure units in England and Wales, average bed occupancy was reported as 90% (Jaycock & Bamber, 2001).

It is clear that relatively few studies of bed occupancy have been published in peer review journals. These indicators are usually published in hospital and other health service reports. Wider dissemination of this data in published articles might contribute to greater examination of bed occupancy as an indicator in hospital services.

2.2.6.2 Bed occupancy rates in developing countries

Studies of bed occupancy in developing countries were found to be even more sparse than those in developed countries. In Zhejiang province, China, the bed occupancy in 38 psychiatric hospitals fell steadily over a 10-year period, due to increasing hospital costs for patients, to an average of 67% (Phillips, 2000).

In Tanzania, during a 3-year programme to deliver mental health care through primary care services in the early 1980s, bed occupancy rates in the psychiatric units which served the area under study reportedly dropped by 50% by the end of the 3-year period (Kilonzo et al., 1998). The actual bed occupancy rates were not reported in this study.

No other literature was found which reported bed occupancy rates in developing countries.

2.2.6.3 Bed occupancy rates in South Africa

In the only South African study of bed occupancy in mental health care, the mean bed occupancy rate for psychiatric inpatient facilities in the Western Cape has been reported as 87%, which was 18% higher than the mean bed occupancy rate for all other public general hospitals in the province (Ensink et al., 1997). The authors point out that there was a wide variation in bed occupancy in psychiatric facilities within the province, ranging from approximately 40% to over 90%. They argue that because of high bed occupancy rates, there is no overprovision of beds in the Western Cape, even though the bed/population ratio is high compared to other provinces.

2.2.6.4 Bed occupancy rates: conclusions

There is wide global variability in bed occupancy rates in inpatient psychiatric settings. Developed countries appear to have generally higher occupancy rates, possibly associated with more efficient use of services. Bed occupancy appears to have increased steadily as deinstitutionalisation has required fewer beds to service populations. In many instances this has placed stringent demands on the use of available beds. In South Africa, little research has been conducted into bed occupancy in mental health facilities, hitherto focusing only on occupancy within one province. There is a need to report data for this indicator of the process of mental health care in inpatient settings in South Africa.

2.2.7 Admission rates

Admission rate is a useful process indicator that reports the number of patients who are admitted to psychiatric inpatient facilities over a given time period in a specified population. Admission rates are particularly pertinent for assessing service use by patients with severe psychiatric conditions, who are more likely to need inpatient care than other psychiatric patients. It is a means of measuring both the admissions of patients in need of chronic care (which may be repeated) and those who may only

require single admissions. It is therefore an important supplement to information supplied by input indicators, such as bed/population ratios.

As with other indicators, admission rates are highly dependent on a number of other parameters (Hickling, 1991) such as:

- the number of available beds (bed/population ratios) which will determine whether beds are available to house admitted patients, and therefore whether patients can be admitted;
- the number of available staff (staff/patient ratios) which will determine whether staff are available to care for admitted patients;
- length of stay, which will determine how long patients will be admitted and, if discharged prematurely because of pressures to reduce length of stay, whether they will need to be readmitted;
- availability of community services, which may prevent relapse or manage patients in the community, thereby reducing the likelihood of admission;
- standards or quality of care, which may lead to improved care in either hospital or community settings and reduce the need for admission;
- level of staff experience and expertise, which may lead to more effective care and thereby reduce the need for admission; and
- practice guidelines and clinical policy, which will stipulate the criteria for admitting patients, both voluntarily and involuntarily, and thereby influence the rate at which patients are admitted.

This is illustrated in the following studies, which have reported on the factors associated with variations in admissions to psychiatric inpatient facilities.

In the context of community-based mental health care, admission rates are particularly dependent on the way in which patients are managed in the community. For example, during the 3 years of the introduction of a primary care mental health team in

Liverpool, UK, although the number of new referrals to the health service remained the same, the utilisation of inpatient beds dropped by 38%, as a result of patients being managed more successfully in the community by the mental health team (Sharma, Wilkinson, Dowrick, Church, & White, 2001). Admissions may also be dependent on social factors beyond the control of the health service. For example, in forensic settings, a linear correlation has been demonstrated between admission rates to secure forensic psychiatric inpatient services and measures of socio-economic deprivation in patients' catchment area of origin (Coid, Kahtan, Cook, Gault, & Jarman, 2001). In addition, legislation may affect the rate at which psychiatric patients are admitted to inpatient facilities. For example, in England, formal admissions to psychiatric hospitals rose by 63% between 1984 and 1996. This increase was mainly accounted for by changes in the use of part II of the Mental Health Act, 1983 (Hotopf, Wall, Buchanan, Wessely, & Churchill, 2000).

Geographic mobility has been shown to be high among patients admitted to inpatient services in inner city London, and it has been suggested that it should be recorded and used as a predictor of admission to inpatient services (Lamont et al., 2000). Clinician characteristics, the service setting and the availability of beds have been reported as significantly predicting involuntary admissions to psychiatric emergency facilities in the USA. No patient characteristics such as diagnosis, age, sex and insurance status were significantly associated with the decision to admit patients on an involuntary basis (Engleman, Jobes, Berman, & Langbein, 1998).

Ethnicity has also been identified as a factor in psychiatric admissions in the UK. In a point-prevalence study in 1994, admissions to all NHS facilities in the North and South Thames regions, as well as 7 private psychiatric units, were examined. Analysis revealed that a high proportion of the black population were admitted to a psychiatric unit; black patients are more likely to be admitted under section; to be placed in locked wards; to have an inpatient diagnosis of schizophrenia; and not to be registered with a general practitioner. The authors conclude that there is an over-representation of black patients in psychiatric services. They argue for the need to examine appropriateness, access and quality of care, as well as the urgent need to incorporate racism awareness and staff training into service development (Koffman, Fulop, Pashley, & Coleman, 1997).

In Rome, Italy, the adjusted odds ratio for psychiatric admission has been shown to increase significantly with the following variables: severity of symptoms; presence of paranoid states, schizophrenic psychoses, affective psychoses and acute psychotic conditions; a history of outpatient treatment; the presence of a staff member of a community mental health facility when presenting at the emergency room; and the availability of beds in the psychiatric ward (Mattioni et al., 1999).

An understanding of admission rates therefore requires information on the broader mental health system in which those rates are reported.

2.2.7.1 Admission rates in developed countries

Table 2.15 provides a summary of the admission rates reported in the literature in developed countries. The figures indicate considerable variability from 220 annual admissions per 100 000 population in Emilia Romagna, Italy to estimates of 766 based on National Institute of Mental Health (NIMH) reports in the USA. This variation supports claims noted in the literature that admission rates are contingent on a range of social, service and patient-related factors (Hickling, 1991).

An example of the importance of demographic factors in admission rates is provided by estimates of increased inpatient admission rates in the USA between 1986 and 1990 (see Table 2.15). Further projections have been made of admissions to specialised mental health organisations in the USA from 1990 to 2010 (Goldsmith, Manderscheid, Henderson, & Sacks, 1993). Projected admissions are based on projections of general US population growth for the period 1990 to 2010 (and trends in the inpatient admission rates between 1986 and 1990). For this period the civilian population is expected to grow 12.8%, from 248 to 280 million people. The elderly population is expected to grow at a much faster pace (24.7%). The authors stress the need for the development of US mental health services in keeping with the projected admission increase, particularly for elderly people.

Table 2.15 Reported annual admission rates per 100 000 population in developed countries

Study	Place	Methodology	Sample	Annual Admission rate per 100 000
(Hafner, 1987)	Mannheim, Germany	Annual rate of admission for 1977 to1987	Not stated	600
(Goldsmith et al., 1993)	USA*	Estimates for 1990-2000 based on inpatient admissions reported by NIMH for 1986	Not stated	705
(Goldsmith et al., 1993)	USA*	1990 estimates based on inpatient admissions reported by NIMH for 1980 to 1986	Not stated	766
(Pomp & McGovern, 1988)	Illinois Department of Mental Health	State Hospital admission records for 1985	136 000	420
(Pomp et al., 1988)	Illinois Department of Mental Health	State Hospital admission records for 1986	Not stated	270
(Cochrane & Bal, 1989)	England	Psychiatric hospital admission rates	Caribbean-born people living in England	539
(Cochrane et al., 1989)	England	Psychiatric hospital admission rates	Native-born English	494
(Fioritti et al., 1997)	Emilia, Romagna, Italy	Private and public hospital admission rates	4 million (approx)	220

* Non-federal general hospitals, private psychiatric hospitals, Veterans Affairs medical centres, State and county mental hospitals and multiservice organisations.

The effects of deinstitutionalisation appear to have had varying effects on admission rates. In Mannheim, Germany, admission rates were reported to have increased, associated with reductions in available bed numbers, shorter admissions and more frequent readmissions (Hafner, 1987). In other instances, such as the deinstitutionalisation programme in Emilia-Romagna, Italy, admission rates remained relatively consistent over the 10 years in which patients were gradually discharged to an extensive range of community psychiatry facilities (Fioritti et al., 1997).

2.2.7.2 Admission rates in developing countries

In developing countries characterised by deinstitutionalisation programmes and the development of community services, falling admission rates have been reported. These are thought to reflect both reduced bed numbers and the successful management of patients in the community (Hickling, 1991). For example, psychiatric hospital admission rates in Jamaica fell 50% from 136 per 100 000 population in 1971 to 69 per 100 000 in 1988 (Hickling, 1991; Hickling, 1994). Hickling associates this with the efficacy of the community psychiatry service and the programme of decentralisation established in Jamaica in 1972. These findings also serve to illustrate the usefulness of admission rates, not only in indicating hospital service use, but also the successful management of patients in the community. However, Hickling (1991) warns that low admission rates should always be interpreted with caution, because they may also indicate: (a) poor referral procedures; (b) under-diagnosis; and (c) unmet need for services.

In Botswana, community psychiatric services introduced in 1977 led to halving of annual admissions to the single mental hospital (from 950 to 450) (Ben Tovim, 1987). In Tanzania, following the implementation of a programme to provide mental health care through primary care services for identified target conditions during 1980-1983, there was reportedly a "dramatic drop" in the number of patients admitted to psychiatric units in the local areas under study (Kilonzo et al., 1998). Unfortunately exact admission rates were not made available.

2.2.7.3 Admission rates in South Africa

No studies could be located which report admission rates to psychiatric facilities in South Africa.

2.2.7.4 Admission rates: conclusions

Evidence from the literature indicates that admission rates are a complex phenomenon and are sensitive to a range of factors. In certain instances deinstitutionalisation has been associated with increased admission rates, while in other instances, admission rates have decreased in association with the development of community-based services.

These patterns seem to indicate that admission rates are particularly sensitive to the successful management of patients in community settings. Sharp increases in admission rates are likely to indicate that deinstitutionalisation is proceeding too rapidly, with patients not being adequately supported by community services. The monitoring of admission rates is important, particularly in the light of current plans in South Africa to reduce hospital-based services and develop community-based care for people with severe psychiatric conditions (Department of Health, 1997). Admission rates would be a useful way of monitoring this process and the effect on service utilisation patterns. The absence of any studies that report admission rates in South Africa underscores the need for this data.

2.2.8 Length of Admission (Average Length of Stay: ALOS)

The average length of stay (ALOS) has frequently been studied as an indicator of hospital resource utilisation (Chang, Brenner, & Bryant, 1991). The monitoring of average length of stay is an important process variable in determining appropriate and efficient use of inpatient facilities, and is a concept readily understood by doctors and planners alike (Priest, Fineberg, Merson, & Kurian, 1995).

As an indicator of hospital resource utilisation, reduced lengths of stay have been as much a benchmark of deinstitutionalisation as reduced bed/population ratios. Hafner (1987) reports that for the North Rhine-Westphalia region of Germany (population more than 8 million) for the period 1950-1984, the most important factor in the

decline in need for psychiatric beds was the substantial decrease in the average length of hospital stay. Similarly, the length of stay in psychiatric hospitals in Finland, in keeping with international trends, has decreased dramatically in the era of deinstitutionalisation. In Helsinki, the mean length of hospitalisation for "first-time" patients suffering from schizophrenia was 148 days in 1960, 72 days in 1965, and 38 days in 1970 (Nieminen, Isohanni, & Winblad, 1994). In Amsterdam, lengths of stay in psychiatric hospitals have also decreased since the 1970's (Dekker & Van den Langenberg, 1994). In Sweden, the average stay in mental hospitals decreased from 298 days in 1960 to 81 days in 1977 (Holmberg, 1988). In a hospital undergoing a programme of deinstitutionalisation over 5 years in Adelaide, Australia, as bed numbers fell by some 45%, the average length of stay dropped from 57 to 37 days (James, 1987). In the USA there was a 41% decline in length of stay between 1971 and 1975, a decrease in median length of stay from 44 days to 26 days (Geller, 2000). The pattern in mental health care has paralleled general health care where there has been a steady decline in lengths of stay in most developed world hospitals in the last 30 years (Monitor Company, 1995). This trend is seen to be associated with reducing the costs of care and integrating psychiatric patients into their communities (see Section 2.2.5).

At present, although a shorter stay is recommended, the optimal length of hospitalisation is still controversial. According to some authors, there is consensus in the literature that long-term hospitalisation in long stay or acute admission wards is undesirable (Allen, Baigent, Kent, & Bolton, 1993). But Geller (1997) argues that the issue of lengths of stay for psychiatric inpatients is complex. It is not adequate simply to reduce lengths of stay in a uniform manner. For example, there is a significant difference between decreasing the average length of stay for a patient with a chronic psychotic condition from 10-20 years to 1-2 years, and decreasing the length of stay for an acute inpatient admission from 20-40 days to 4-8 days. Factors such as the specific needs of patients, the nature of the facility, numbers of available beds and staff, admission rates, readmission rates and default rates all inform lengths of stay. In addition, Hafner (1987) argues that discharge policies have a crucial effect on inpatient services, and that a precondition for speedier discharge is a well coordinated comprehensive community mental health service.

2.2.8.1 ALOS in developed countries

Studies that report average lengths of stay in developed countries are summarised in Table 2.16.

Of note in Table 2.16 are the extremely long average admission lengths in Japan. Some authors have noted that although Japan has attempted to develop community-based care, psychiatric institutions have not been downscaled (Inoue, 1998; Shinfuku, 1998). The result appears to be a pattern of care marked by high bed/population ratios (see section 2.2.2), low staff/bed ratios (see section 2.2.4) and long ALOS.

Rosenheck and Astrachan (1990) report in their study (Table 2.16) that there were significant differences in average length of stay across regions. For example, the longest lengths of stay were found in the Northeast and Mid-Atlantic regions of the USA where figures were more than 20% higher than the corresponding figures for the entire nation. This was in spite of the fact that no consistent differences between regions were identified for the number of episodes of care per 100 000 population. The authors conclude that average length of stay appears to be strongly influenced, at least in public sector organisations, by the number of psychiatric beds available. In this study, regional lengths of stay in VA medical centres and in state and county mental hospitals were strongly correlated with the number of occupied beds for all organisations taken together: lower average lengths of stay correlated with lower bed/population ratios. The authors conclude that for public sector services (i.e., those that serve poor and chronically mentally ill patients), bed availability has more of an impact on the provision of care than in private sector facilities, which have traditionally been able to shape and select their patient populations.

Table 2.16 Average length of stay for psychiatric facilities in developed countries

Study	Place	Methodology	N	Average length of stay (days)
(Holmberg. 1988)	Sweden	Average stay in mental hospitals, 1977	Not stated	81
(Nieminen et al., 1994)	Therapeutic community ward, Oulu, Finland	Medians of patients' length of stay during 1977-1991	2384 treatment episodes of 1330 patients	40
(Lawrence et al., 1991)	Powick Hospital, UK	Medians of patients' length of stay during 1971-1978	901 admissions of 546 patients	26
(Lawrence et al., 1991)	Kidderminster General Hospital Psychiatric Unit, UK	Medians of patients' length of stay during 1978-1985	1149 admissions of 607 patients	26
(Lawrence et al., 1991)	Barnsley Hall Hospital, UK	Medians of patients' length of stay during 1978-1985	853 admissions of 482 patients	49
(Rosenheck et al., 1990)	Non-Veterans Affairs (VA) facilities	Total days of care divided by episodes of care during 1983	81 821 000 bed-days; 1 995 634 episodes of care	41
(Rosenheck et al., 1990)	Veterans Affairs (VA) facilities	Total days of care divided by episodes of care during 1983	81 821 000 bed-days; 1 860 613 episodes of care	43
(Chang et al., 1991)	CMHC, North East USA	Median length of stay during 1987-88	487 admissions	20
(Koizumi et al., 1992)	Japan	Average length of stay during 1989	Not stated	496
(Federman et al., 2000)	99 VA facilities in USA	Median length of stay	Not stated	26.7 (1994) 12.0 (1998)

The importance of bed availability was confirmed in a review of mental health service utilisation over one year in Nordic countries. The number of days in voluntary inpatient care showed a significant and strong correlation with the rates of short-term beds ($r=0.89$) (Hansson et al., 1998). This seems to indicate the impact of service availability (beds) on lengths of admission, despite the finding in this study that on all other measures correlations between levels of resources and service utilisation by patients with functional psychosis was generally low.

In Australia, the impact of the integration of a psychiatry ward with a community psychiatry service on median length of stay has been examined. Two functionally identical wards were compared, with one ward undergoing integration. Measures were taken 6 months before and after integration. The median length of stay on the integrated ward more than halved compared to its own baseline and the control ward. Twelve beds were closed as a result of the efficiencies generated by integration. Importantly, readmissions did not increase for the integrated ward due to effective community management of the discharged patients (Mellsop, Blair-West, & Duraiappah, 1997). The study shows the direct impact on ALOS of reduction of bed numbers and integration with community services, as well as the potential to manage readmissions if services are organised effectively.

Factors associated with delays in discharge have been reported as a means of understanding ALOS and identifying ways of reducing inappropriately long admissions. In 12 adult psychiatry units in general hospitals in Vancouver, Canada, patients whose planned discharge was delayed had significantly higher scores for disorientation, hallucinations, conceptual disorganisation and manifest psychopathology and significantly lower scores for Community Adjustment Potential (CAP) ($p<0.05$). Delayed patients were found to be more likely to need services, to need or be waitlisted for a residential placement, to be a client of the CMHT which provides ongoing community support to patients, to have a diagnosis of schizophrenia, and to have had no

previous psychiatric hospital admission (Kelly, Watson, Raboud, & Bilsker, 1998).

Attempts have been made to reduce delays in discharge by changing service variables and observing the effect on placement of patients. A study conducted in Glasgow, Scotland, examined the effect of improved social work liaison for patients aged 18-65, who had spent longer than 3 months in acute psychiatric inpatient facilities (Connolly & Ritchie, 1997). After a period of one year, improved liaison did not shorten the length of stay of the inappropriately placed patients. The authors concluded that additional factors such as limited access to rehabilitation placements and patients having complex physical and behavioural problems made placement elsewhere difficult.

The average length of stay for acute facilities (Table 2.17) indicates less variability, in keeping with the nature of the facility. This seems to reflect some consensus on the length of stay which is generally offered within acute facilities, although, as some authors note, acute facilities often continue to house patients who are ready for discharge because post-discharge facilities are not available (Kelly, 1998).

Table 2.17 Average length of stay: acute units in developed countries

Study	Place	Methodology	N	Average length of stay (days)
(Priest et al., 1995)	DGH acute psychiatric unit, central London	Median length of stay of a cohort of patients admitted over 13 weeks	Not stated (Cohort of patients admitted to a 60 bed facility)	15
(Curtis, Millman, Struening, & D'Ercole, 1992)	Psychiatric ward of public general hospital, New York	Not stated ("Average" length of stay for the period 1984-85)	700 patients admitted to a 47 bed facility (95% involuntary or emergency)	22
(Huntley, Cho, Christman, & Csernansky, 1998)	Metropolitan St Louis Psychiatric Centre, Missouri, USA	Mean length of stay for two 6-month periods	760 patients admitted to a 125 bed facility	16.3
(Sajatovic, Donenwirth, Sultana, & Buckley, 2000)	Acute care state psychiatric facility, Cleveland, Ohio	Mean length of stay for adult women under age 50 during a one year period (1997-1998)	492 patients admitted to a "large urban state mental health facility"	15
(Brown, 2001)	Maryland state general hospitals	"Average" length of stay of all adult patients with principal diagnosis of psychiatric disorder during 1998	26 893 patients	5.6

2.2.8.2 ALOS in developing countries and South Africa

No research was found which reported on length of admission in psychiatric facilities in these countries.

2.2.8.3 ALOS: conclusions

In developed countries, reductions in average length of stay have been a hallmark of the deinstitutionalisation era. A range of factors have been shown to be associated with increased length of stay. There is a paucity of data on average length of stay in psychiatric facilities in developing countries, including South Africa.

In this country, policy recommendations that hospital services should be reduced and replaced with community-based care indicate the likelihood that lengths of admission will be reduced in future. This process needs to be carefully monitored in order to provide care which is effective and of acceptable quality. ALOS is a useful indicator in this regard. There are ample opportunities for learning from the lessons of developed countries in their efforts to reduce length of stay.

2.2.9 Readmission rates

Since the 1980s, high readmission rates, associated with deinstitutionalisation and shorter periods of hospitalisation, have become a major concern for professionals and administrators (Kastrup, 1987). It has been estimated that up to 50% of psychiatric patients return to hospitals within a year of their last discharge, both in developed countries such as the USA (Lamb, 1981, quoted in Postrado & Lehman, 1995) and in developing countries such as Cuba (Kates, 1987). Unnecessary rehospitalisation means excessive cost to patients, their families and the mental health service. Research has shown that rehospitalisation also has a negative effect on patients' level of functioning and employment (Postrado et al., 1995).

Geller (1992) argues that problems of readmission and a revolving door pattern of care are uniquely associated with the deinstitutionalisation era. Comparing the

functioning of one hospital in the USA over 3 decades (1880-1889, 1930-1939, 1980-1989), Geller concludes that the current revolving door pattern is not related to changes in the patient population but to the change in policies of mental health care associated with deinstitutionalisation. Fisher et al., (1992) concur, arguing "state hospital recidivists have substituted multiple short hospitalisations for the prolonged inpatient care that was the much-criticised hallmark of institutional psychiatry in the first half of the century" (p 385). Although strategies have been adopted to reduce high readmission rates, such as case management within a community based system of care (Curtis et al., 1992; Rossler et al., 1992), the problem of high readmission rates remains an obstacle to effective and efficient community care.

In this context, the rate of readmission, despite its problems, has frequently been used as an indicator of the success of a mental health programme (Kastrup, 1987). As might be expected, the factors associated with readmission rates are many and complex. In keeping with the evidence from the literature, any reporting of readmission rates must be informed by an understanding of the wider mental health system, including bed/population ratios, staffing, available community services, bed occupancy rates, admission rates, length of stay and default rates. Broader issues related to quality of care, practice guidelines (particularly discharge policies), and level of staff experience and expertise all inform the rate at which patients are readmitted to inpatient facilities.

2.2.9.1 Readmission rates in developed countries

Although comparison between different studies is limited by the lack of standardisation of the time periods for readmission, a review of rate of readmission across different settings is possible (Table 2.18). As might be expected, the studies show increased readmission rates with increased time delays following discharge.

Table 2.18 Reported readmission rates in developed countries

Study	Place	Methodology	N	Readmissions within periods of time (%)				
				30 days	60 days	6 mths	1 yr	5 yrs
(Fisher et al., 1992)	5 regions of Massa-chusetts	Utilisation patterns of psychiatric patients over a 4 year period	5610	11-20	16- 26			
(Swett, 1995)	Acute admissions unit, New Hampshire Hospital	Evaluation of patients at discharge using BPRS and NOSIE	189	17				
(Distefano, Pryer, & Garrison, 1991)	Louisiana State Hospital	Literature review of psychosocial rehabilitation programmes	n/a			30-40	35-50	
(Vogel et al.. 1997)	Geneva, Switzerland	Univariate statistical analysis of data on all patients hospitalised over a 1 year period	1575				33	
(Postrado et al.. 1995)	Psychiatric hospitals in 4 American cities*	Percentage of chronic patients rehospitalised on 12 month follow-up	559				47	
(James, 1987)	Adelaide, Australia	Prior to deinstitutionalisation programme (1980)						64
(James, 1987)	Adelaide, Australia	After deinstitutionalisation programme (1985)						60
(Stevens, Hammer, & Buchkremmer, 2001)	University of Tubingen psychiatric hospital	Analysis of hospital admission records over 4 year period	4706				23	34.7 (over 4 yrs)

* The hospitals were part of local mental health authorities established by the Robert Wood Johnson Foundation Programme on Chronic Mental Illness.

Across 5 regions of Massachusetts, USA, in all but one region, the probability of remaining outside a state facility for 4 years after discharge was about 50% (Fisher et al., 1992).

In a review of the deinstitutionalisation of patients diagnosed with schizophrenia in Finland, although community residential facilities were developed to keep pace with the reduction in psychiatric hospital bed numbers, readmission rates increased during the period 1980-1998. Readmission rates were particularly high for patients whose condition had a long duration (Salokangas et al., 1998). In a more specific study of the period 1990-1993 in Finland, while bed numbers were reduced by 4540 and admission rates remained the same, there was a significant increase in the rate of readmissions to psychiatric hospitals ($p<0.001$), particularly in multiple (3 or more) readmissions among new patients ($p<0.001$) (Korkeila, Lehtinen, Tuori, & Helenius, 1998).

In a study comparing risk of readmission in two settings (Victoria, Australia and Groningen, The Netherlands) Sytema and Burgess (1999) found that although the risk of readmission was predominantly affected by attributes of mental illness, the length of admission was strongly affected by service system variables, including continuity of care. The authors note the differences between the two settings and the effect on service consumption, continuity of care and risk of readmission. Whereas the Victoria service had more developed community resources, more hospital beds were available in Groningen (Sytema & Burgess, 1999). While the relative risk of readmission was the same in both settings, the number of days spent in hospital was much higher in the Groningen area, associated with the greater availability of hospital beds. Although a conclusion may be drawn from this finding that service variables affect length of admission but not readmission, such a finding would need to be replicated in a variety of settings before any firm conclusions could be drawn.

In the USA, attempts have been made to actively reduce readmission rates. In one study a multidisciplinary performance improvement team was chartered to monitor readmissions to psychiatric hospitals and implement plans to reduce readmissions (Frazier, Amigone, & Sullivan, 1997). During a 12-month period, high-end users (with 3 or more hospitalisations in one year) were identified as having a similar pattern of service use (or "triggers") prior to readmission. These triggers were used to develop a Triggers Intervention and Prevention (TIPS) system, which enabled more effective early management of the identified patients. A comparison of hospitalisation rates pre- and post-implementation showed a significant reduction in the number of patients who had 3 or more hospitalisations, fewer total admissions and a shorter average length of stay.

The only developing country for which literature could be found on readmission rates in mental health care was South Africa.

2.2.9.2 Readmission rates in South Africa

Little research has been done in South Africa in the area of psychiatric patient readmissions. Readmissions to psychiatric hospitals increased steadily in the 1970s and early 1980s, to a point where readmissions constituted 45% of total admissions in 1984 (Department of National Health and Population Development, 1984, quoted in Gillis, Sandler, Jakoet, & Elk, 1986).

Gillis et al., (1986) conducted a follow-up study of 460 sequentially admitted patients at a Cape Town psychiatric hospital. Differences in readmission rates were reported between races, with 26.5% of white, 41% of coloured and 42% of black patients readmitted within the first year of discharge (mean: 36.5%) (Gillis et al., 1986). Factors associated with these racial differences were not reported, although there was a marked difference in diagnosis, with schizophrenic and affective disorders being more common among black and coloured patients than white patients. Gillis et al., (1986) argue that the majority of readmitted patients require community based care in the form of social welfare, rehabilitation and retraining, sheltered and protected employment, and protected accommodation.

2.2.9.3 Readmission rates: conclusions

International research seems to indicate that an increase in readmission rates is associated with deinstitutionalisation and the management of patients with severe psychiatric conditions in the community. Researchers conclude that this "revolving door" pattern of care can be controlled through monitoring of the factors associated with readmission and actively planning services that manage these service- and patient-related variables.

In South Africa, relatively high readmission rates and the reported increase in this rate seem to indicate that discharged patients do not receive adequate care in the community and therefore require readmission. The monitoring of readmission rates in mental health services in this country is therefore necessary to assess the impact of the proposed downscaling of institutions and development of community-based care.

2.2.10 Default rates

Patient defaults from psychiatric care, whether in the form of missed appointments, aftercare dropouts or non-compliance with medication, are phenomena which both interfere with treatment programmes and disrupt efficient utilisation of staff time (Sparr, Moffitt, & Ward, 1993; Nicholson, 1994; Grunebaum et al., 1996). These are costly problems, which are widespread in community psychiatry, appear at varying stages of treatment and present a constant challenge to the treatment team (Chen, 1991).

Research shows that between 35% and 50% of patients fail to continue treatment after hospital discharge (Chen, 1991). One study showed that when there is little involvement from staff in the referral procedure, the rate of non-compliance can be as high as 78% (Stickney, Hall, & Gardner, 1980). Although some authors argue that patients who drop out of therapy may have done so because of their own satisfaction and therefore should not be regarded as treatment failures, this is not applicable to patients with severe psychiatric conditions. Many authors argue that schizophrenia and major affective disorders are recurrent in nature and require long term management (Chen, 1991), although there are some voices who dissent on the course

of schizophrenia (Warner, 1994). Therefore consideration of default is particularly important when investigating the service needs of patients with severe psychiatric conditions.

While defaults present an ongoing problem to mental health planners and clinicians, the rate of default is also an important indicator in mental health care. In the first instance it is a measure of the extent to which patients within the health care system are not receiving the treatment they require. In addition, non-compliance following discharge for chronic psychiatric patients is closely associated with recidivism and rehospitalisation (Chen, 1991; Swett, 1995). Newly discharged patients who do not attend follow-up have been reported to have a two- to three-fold increase in rate of readmission, compared to those who remain in contact with services (Koch & Gillis, 1991). Default therefore supplements the information provided by readmission rates. Consequently an understanding of the profile of patients who default from their treatment (identified in the literature as the factors associated with default) provides valuable information for planning prevention of default and of subsequent readmission. Because it is integrally linked to other indicators, particularly readmission rate, it is an important indicator of the kind of service which defaulters are likely to require.

As with other indicators, the reporting of default rates should be supplemented by information on the mental health system from which patients are defaulting. The availability of appropriate community level resources, numbers and skill levels of available staff, standards of care, discharge policies, lengths of stay and the availability of alternatives to mental health care (such as traditional healers) all inform the rate at which patients default from existing services.

2.2.10.1 Default rates in developed countries

Default rates for general psychiatric outpatient facilities in developed countries are summarised in Table 2.19. "No-show" rates of between 20% and 60% indicate the extent of missed opportunities for treatment, as well as the inefficient utilisation of staff time.

Table 2.19 Default rates in psychiatric outpatient settings in developed countries

Study	Place	Methodology	N	Default rate (%)		
				No-show (1st visit)	After 1st visit	After 4th visit
(Cohen, Edstrom, & Smith-Papke, 1995)	Chicago	Literature review	n/a		20-57	31-56
(Grunebaum et al., 1996)	Cornell PHC Clinic, USA	Chart reviews of consecutively referred patients	180 psychiatric outpatients	38		
(Nicholson, 1994)	London, Ontario	Literature review	n/a	20-60		
(Chen, 1991)	Tampa, Florida	Literature review	n/a	26-50	9-40	30-60

2.2.10.2 Default rates in developing countries

In a 2-year prospective cohort study of 99 patients with non-affective psychoses discharged from hospital in Sao Paolo, Brazil, 42% of patients missed all outpatient appointments for 2 months (Menezes, Scazufca, Rodrigues, & Mann, 2000). Household crowding was the only variable significantly associated with poor compliance, with patients living in very crowded homes being more than twice as likely to show poor compliance than those living in less crowded homes. The authors argue that in developing countries, socio-economic factors play an important role in compliance with outpatient care.

2.2.10.3 Default rates in South Africa

Until recently there has been little research conducted into default in psychiatric treatment conducted in South Africa. Freeman et al., (1994) found that 17% of patients in the Free State could be identified as 'defaulters,' (i.e., had failed to attend monthly maintenance medication appointments for the last 4 months), while 39% were irregular attenders (i.e. had failed to attend for 2 or more consecutive months sometime in the previous year). No other studies of default rate in outpatient psychiatry settings in South Africa could be located.

2.2.10.4 Default rates: conclusions

Defaults in mental health care interfere with effective treatment and disrupt the efficient utilisation of staff time. Rates of default have been widely reported in mental health settings in developed countries. However, little research has been conducted into default rates in South Africa. In the light of limited resources in this country, the need to use these resources efficiently and stated policy aims to deliver a comprehensive community-based mental health service, the monitoring of default rates is an important area of research.

2.2.11 Service indicators: conclusions

A review of the literature for the nine identified service indicators shows their usefulness in measuring various aspects of mental health service resources (inputs) and provision (process). In particular, these indicators have provided a means of

charting the changes undergone in mental health service provision in developed and developing countries during the last 50 years. In the context of South African mental health service research, there is a dearth of data for these indicators. Although one national study has reported input indicators for staff and beds, other studies that have reported input indicators have been restricted to specific provincial services, or to specific hospitals. Studies of process indicators have been restricted to specific provinces (such as the Free State and Western Cape) or specific hospitals. There is therefore an urgent need to report this data at national and provincial level. Data is necessary (1) to provide an overview of the current situation, post-apartheid; (2) to provide a baseline for future comparison, after proposed deinstitutionalisation, as set out in new mental health policy; and (3) to inform the development of service norms.

2.3 Model

2.3.1 Definitions

The term "model" has been used in a variety of senses and for a variety of purposes in the mental health service planning literature. It has been used to mean a conceptual framework for understanding mental health care. For example, Thornicroft and Tansella have developed a "mental health matrix" as a conceptual model or explanatory tool to assist in the understanding and improvement of mental health services (Thornicroft et al., 1999) (see section 2.1, above). The term model has also been used to mean a framework for the operation of services, including domains of (1) level of focus (population to individual), (2) spectrum of interventions (prevention to maintenance), (3) lifespan of target groups (infancy to old age), and (4) level of service (primary, secondary and tertiary) (Raphael, 1999). In a similar sense, a model has been developed for comprehensive public mental health programmes in developing countries, on the basis of a programme in Guinea-Bissau. This model or framework began with clinic-based epidemiological surveys, on the basis of which needs were identified, primary health care workers trained in diagnosis and treatment of mental health programmes, and evaluation conducted (De Jong, 1996). Statistical modelling has also been developed to account, for example, for variations in costs of community mental health services (Bonizzato, Bisoffi, Amaddeo, Chisholm, & Tansella, 2000).

In this thesis, the term **model** is used in a more specific sense, to mean a tool for calculating mental health service resources, based on an estimation of the need for services in a given population. The measure of need used is epidemiological data (specifically annual prevalence data), adapted to the demographic profile of a South African population. The purpose is to provide a rational and transparent framework for calculating the mental health resource needs (specifically staffing and beds) of people with severe psychiatric conditions in a local population during an average year. The development of a model to calculate resource needs based on epidemiological data is conceptualised as an essential step in the planning of services. Together with data on current service utilisation and current resources (from the service indicators), and consultation with mental health stakeholders, this model can be used to develop norms, adaptable for local planning and target setting.

Such a model should (Raphael, 1999):

- be easily understood;
- provide an optimal structure for the delivery of programmes;
- be flexible enough to respond to changing priorities or emerging needs;
- provide a functional system for effective, efficient, high-quality programmes across a spectrum of interventions;
- be a vehicle for evidence-based practice, in response to local community needs; and
- achieve optimal outcomes by improving the mental health for the population and individuals.

Currently there are no models that fulfil this function in South Africa. Methods have been developed to (1) estimate the need for mental health services in populations outside South Africa, (2) calculate the mental health resources required to fulfil those needs in settings outside South Africa, and (3) calculate some mental health resource needs in the context of general health care in South Africa. This section will discuss each of these approaches, highlighting their limitations and hence the need to develop a model for planning mental health resources in South Africa.

2.3.2 Methods for estimating the need for mental health services

Need has been defined as "the requirements of individuals to enable them to achieve, maintain or restore an acceptable level of social independence or quality of life" (UK Department of Health Social Services Inspectorate, 1991). Perceptions of need have been shown to vary widely between stakeholders in mental health. For example, staff and patients have been shown to agree moderately about met needs, but to agree less often on unmet needs (Slade, Phelan, & Thornicroft, 1998). (For a discussion of the distinction between "need" and "demand" see section 2.4.2., below).

Epidemiological research has been used in many instances to measure mental health needs in specific populations. Major epidemiological studies have been conducted in the USA (Kessler et al., 1994a), UK (Jenkins et al., 1998), Australia (Henderson, Andrews, & Hall, 2000), Brazil (Andrade, Walters, Gentil, & Laurenti, 2002) and internationally (Kessler, 1999), among others. Using epidemiological data gathered during the Australian National Mental Health Survey, researchers have argued that mental health planning should be based on data about prevalence, disability and service utilisation (Andrews, Henderson, & Hall, 2001). Jenkins argues that public health policy should be based on the needs of the population, which can best be assessed through the epidemiology of psychiatric morbidity (Jenkins, 2001). The use of epidemiologically based need assessment to critique current resource allocation in fee-for-service reimbursement schemes has been well demonstrated in Ontario, Canada (Lin, Chan, & Goering, 1998). The use of epidemiological data to estimate service need is further supported by findings that the seriousness and complexity of illness is significantly related to probability of service use, number of service sectors used, mean number of visits and speciality treatment (Kessler et al., 1999).

However, the interpretation of epidemiological prevalence as an indication of the need for mental health services should proceed with caution. Analysis of the Baltimore Epidemiological Catchment Area data found that 84% of those with mental disorders did not seek outpatient treatment during the 6-month period under study (Regier, Shapiro, Kessler, & Taube, 1984). In the survey of mental health and well-being in Australia, some 60% of those who met criteria for an International Classification of Diseases and Related Health Problems (ICD-10) disorder did not obtain professional

help (from either a general practitioner or a mental health specialist) (Andrews, 2000). In many instances there is poor correlation between diagnosed conditions and the demand for, or utilization of services. In Canada, predicted need has been shown to exceed service utilization in 7 out of 10 areas for all mental health services (Kelly & Jones, 1995).

The demand for services may be low relative to need because services are non-existent, geographically inaccessible, of poor quality or unaffordable (WHO, 2001c). Social stigma may prevent the use of mental health services (Goldman et al., 2001; Starr, Campbell, & Herrick, 2002). It may be that not all those who fulfil the criteria for a psychiatric disorder experience disability of sufficient severity to seek assistance from mental health services (Andrews, Sanderson, & Beard, 1998; Andrews, 2000). In addition, it may be that local communities perceive mental health services as culturally inappropriate for their needs (Vega, Kolody, Auilar-Gaxiola, & Catalano, 1999). This is particularly pertinent to South Africa, where many patients diagnosed with schizophrenia, use different explanatory models (such as *amafufunyana* or spirit possession) to understand their condition, and frequently make use of both public sector psychiatric services and traditional healers (Lund & Swartz, 1998).

For these reasons, prevalence may provide an over-estimation of need, and the estimations provided by a model may need to be adjusted in the light of current service utilisation, and the opinions of key stakeholders in mental health. More research is needed to explore the phenomenon of unmet need (Lefebre, Cyr, Lesage, Fournier, & Toupin, 2000), patterns of service utilization (Wittchen, 2000) and the criteria for allocating scarce mental health resources (Andrews & Henderson, 2000). Further international epidemiological study, which has a bearing on these issues, is ongoing (Kessler, 1999; Wittchen, 2000; WHO, 2001c).

Because of variations in perceived need, the adaptation of a model to local service needs is essential. Several factors inform variations in need. Firstly, variations in need may be associated with the availability of services. The European Psychiatric Services: Inputs Linked to Outcome Domains and Needs (EPSILON) study, which compared the needs of patients diagnosed with schizophrenia in five European countries, found that at least part of the variation in individual needs between

countries was explainable in terms of differences in service provision (McCrone et al., 2001).

Secondly, variability in needs may be associated with the service setting, particularly whether services are located in rural or urban areas. There is a consistent tendency across a range of countries for rates of psychiatric disorder to be higher in urban than in rural areas (Jenkins, 2001). This is so not only in developed but also developing countries (Canino, Bird, & Shrout, 1987). There are exceptions to this rule, for example in a community survey in Pakistan, levels of emotional distress and psychiatric morbidity in a poor urban area of Rawalpindi were found to be less than half those in a nearby rural village in the Punjab (Mumford, Minhas, Akhtar, Akhtar, & Mubbashar, 2000). Apart from population-based needs, there are other challenges to providing mental health care in rural areas in developing countries, such as limited institutional infrastructures, lack of trained professionals, difficulties in communication, and problems of access (Murthy, 1998).

A third important variable in assessing the need of a population for mental health care is age distribution. A broad trend is that mental health needs increase with advanced age (Murray et al., 1996). Growing numbers of elderly people in developing countries signal an increase in mental health burdens within those populations (Levkoff, MacArthur, & Bucknall, 1995).

A fourth variable is the level of social deprivation. Several studies have shown that there is greater frequency of mental illness among socially deprived populations and in inner city areas (Harvey et al., 1996; Koegel, Sullivan, Burnam, Morton, & Wenzel, 1999; Kovess, Gysens, Poinsard, Chanoit, & Labarte, 1999), and that more severe mental illness is more concentrated in deprived areas (Glover, Leese, & McCrone, 1999).

Apart from epidemiological measures, several instruments have been developed to assess need for community mental health services, including the British Medical Research Council Needs for Care Assessment Schedule (MRC-NFCAS) (Brewin, Wing, Mangen, & Brigha, 1987) and the Camberwell Assessment of Need (CAN) (Phelan et al., 1995). Needs for care in the general population have been assessed in

conjunction with epidemiological measures. Using the NFCAS, Bebbington et al. (1997) found that in a population in inner south London, (N=760) the weighted 1-year prevalence of hierarchically ordered ICD-10 psychiatric disorders was 12.3%, while 10.4% of the population were identified as having a need for the treatment of a psychiatric condition within the whole of the preceding year (Bebbington, Marsden, & Brewin, 1997). Less than half of all needs that could potentially be met were in fact met, and there was only a partial overlap between assessed need for treatment and diagnosis.

Because of the importance of population-based variables, approaches to the allocation of mental health resources for local populations have been developed using census data. In the UK, the Resource Allocation Working Party (RAWP) has determined funding according to regions on this basis (Jarman & Hirsch, 1992). Indices of social deprivation such as the Jarman index have been widely used in this context (Jarman, 1983). Using this approach, a model has been developed for resource allocation for public mental health services in Victoria, Australia, including adjustments for socio-economic disadvantage, age, gender and marital status, as well as discounting for the estimated substitutive activity of the private sector (Meadows, 1997).

In other research, efforts have been made to determine resource needs, such as the minimum and optimal number of psychiatric hospital beds by measuring quality of care with artificial neural networks (Davis, Lowell, & Davis, 1998).

To summarise, studies that have attempted to measure needs for mental health care have focused on epidemiological data. While there is some consensus that this is a useful means of assessing need, caution is expressed that there may be poor correlation between epidemiological data and the demand for, or utilisation of services. Furthermore, local variables may affect need. These variables include the service setting (urban versus rural), the extent of social deprivation, age distribution and the extent of existing services. Apart from epidemiological data, other measures have been developed to assess need, including needs for care assessment schedules, and census data.

2.3.3 Methods for calculating mental health resource needs outside South Africa

There have been several attempts in recent years to develop hypothetical models to estimate mental health service needs and consequent resource implications for a given population. Historically, an early attempt was *The Tolkien Report: a description of a model mental health service* developed by Gavin Andrews in New South Wales, Australia (Andrews, 1991). The Tolkien report was written as a response to the successes of managing people with severe psychiatric conditions in community settings, with a view to calculating Australian mental health service resource needs in this light. On the basis of epidemiological data, Andrews (1991) calculated the need for mental health services in a specified population over a specified time period, and hence the resources (such as beds and staffing) required to deliver those services.

The World Health Organisation (WHO, 1996b) has developed this method with the goal of calculating service needs for national mental health programmes, specifically for people with "severe mental disorders". The WHO model calculated beds, staffing and medication required to care for people with severe mental disorders in a local population of 500 000 people over an average year.

2.3.4 Methods for calculating some mental health resources in the context of general health care in South Africa

In South Africa, the Centre for Health Policy (CHP) at the University of the Witwatersrand has developed *Guidelines for Primary Health Care Services* (Rispel et al., 1996), which detail community mental health service needs at primary level. Although this provides a useful starting point for a modelling process, unfortunately this study does not set out secondary or tertiary mental health service needs in either community or hospital settings. The *Hospital Strategy Project* (Monitor Company, 1996) has been the most significant recent development in recommending affordable guidelines for general hospital care. However, its recommendations categorise psychiatric inpatient facilities rather crudely under "chronic hospitals", together with tuberculosis hospitals, and recommend a blanket figure of 40 beds per 100 000 population for these "chronic" hospitals. Clearly this is a misunderstanding of the function of psychiatric inpatient facilities in the context of community-based mental health care.

Neither of these studies therefore provide specific details on the comprehensive service needs of people with severe psychiatric conditions in keeping with current health policies. There is a need for revisioning of the model of mental health services in South Africa which includes both hospital and community services, with an emphasis on the short term management of patients in hospital settings and the concerted rehabilitation and treatment of patients in the community.

2.3.5 Shortcomings and the need for a new model

Evidence from the literature seems to indicate that (1) the development of a model is useful for planning the mental health resource needs of a population; (2) the planning and resource allocation of mental health services should proceed according to evidence of the need for mental health care in the community; (3) the best available assessment of need is epidemiological data, although other measures such as census data and measures of need-for-care have been used; (4) there are limitations to the use of epidemiological data, and this data should therefore be supplemented with other local data (such as census data, utilisation data and cultural beliefs regarding the need for mental health care).

There are limitations to the current methodologies for the following reasons. International need assessment data (such as epidemiological data and needs-for-care studies) do not provide indications of the specific mental health needs of a South African population. They also do not provide the modelling methodology necessary to calculate local resources, such as beds and staffing. Those modelling methodologies that have been developed for mental health care (by the Tolkien report and WHO) do not use data that is specific to South African needs. South African models that have been developed in the context of general health care do not address the specific mental health needs of people with severe psychiatric conditions. For example, mental health needs have been included with tuberculosis under "chronic care" (Monitor Company, 1996).

These findings show that there is a need to develop a model to calculate the resources required to deliver mental health services to a local South African population within a specified time period. This thesis will set out to develop such a model, drawing on the methodology of the WHO (WHO, 1996b), which uses epidemiological data as a

proxy for need to calculate the mental health resource needs of a local population. Adaptations have been made to the assumptions of that model at key points, according to South African census data and service utilisation data. Some of these assumptions draw on the findings and recommendations of both the Centre for Health Policy (Rispel et al., 1996) and the Hospital Strategy Project (Monitor Company, 1996). The limitations of annual prevalence data for estimating need have been noted in the literature. For this reason, annual prevalence data is used as a proxy for need. It is argued that this model's methodology does not rest or fall with the use of prevalence data. Other measures of need, which generate the data necessary to calculate resources, could be substituted in future. Local, culturally appropriate measures are preferable.

2.4 Norms

2.4.1 Definitions

The Concise Oxford English dictionary defines a norm as "the usual, typical or standard thing... a required or acceptable standard" (Pearsall, 1999).

In this thesis, **norms** are defined as recommended quantitative levels of mental health service provision. Norms are conceptualised as being closely linked to service indicators, in the sense that they provided a recommended benchmark or level for a particular indicator. For example, bed/population ratios can be used as an indicator of the resources available for inpatient service provision in a given population. Norms provide a recommended level for bed/population ratios in that population. Norms are therefore distinguished from indicators in the sense that indicators describe existing levels of care, whereas norms recommend a level of care.

2.4.2 Approaches to resource allocation

In the field of mental health services, the allocation of resources such as the number of beds per 100 000 population, or the number of staff per ambulatory care patient, are seldom the consequence of carefully considered "normative" clinical needs. More often such ratios reflect the vagaries of mental health budgets, and social constructions of what constitutes mental illness and mental health (Beecham, 1995). Norms are, in post-modern terms, the constructions of the particular situations in which they are located (Gergen, 1994).

For this reason, a discussion of norms necessitates a discussion of the criteria for how mental health resources are to be allocated. In short, if norms are to be developed for planning mental health resources, what rules guide the setting of these norms? Broadly, five approaches may be identified for the allocation of resources in health service planning (Green, 1999; Rispel et al., 1996; Petrou & Wolstenholme, 2000):

2.4.2.1 Allocating resources by need

In a needs approach, resources are allocated according to assessments by health professionals and researchers, based on population and epidemiological data. For example, the annual prevalence of severe psychiatric conditions might be used to calculate likely service utilisation and hence the resources needed to provide those services.

This approach carries two disadvantages:

- It is a top-down approach, which does not allow for community participation in decision-making about how resources are allocated.
- It does not take into account other service constraints, such as financial considerations, technological limitations, and the skills of staff.

2.4.2.2 Allocating resources by demand

Allocation of resources according to demand makes use of data on current service utilisation, as well as socio-economic factors which are likely to influence future utilisation of services. The disadvantages of this approach are that it is essentially market-driven and is based on current utilisation of services. It can therefore serve to simply maintain the *status quo*. Current utilisation of services is contingent on the availability of services, and therefore may not reflect the need of the population for health care. In mental health care, needs are frequently hidden because of factors such as the stigma of mental health problems and differing cultural views of what constitutes a mental health need.

This approach is inappropriate for public sector mental health planning in South Africa, when the *status quo* has been shown to be inadequate (Foster et al., 1997a). Furthermore the need for change has been stated in policy, through which the government has declared its intention to provide a comprehensive, integrated service, which is accessible to all who are in need (Department of Health, 1997).

2.4.2.3 Allocating resources using economic approaches

In these approaches, resources are allocated according to the combination of human and material inputs that maximise health benefits or other measures of social welfare. Health economists have used cost-benefit and cost-utility analyses to assess the appropriate allocation of limited resources. However, these approaches have practical and methodological limitations, particularly in the field of mental health care, where the outcomes of mental health services are difficult to quantify in economic terms. Attempting to apply these methodologies in South Africa, where data is not available to enable the use of the methodologies, further hampers this approach. Furthermore, the use of composite outcome indices, such as Disability Adjusted Life Years (DALYs) have been criticised for their basis in certain value judgements about health (Green, 1999).

2.4.2.4 Allocating resources through pluralistic bargaining

In this approach, service priorities and resource allocation are set through a process of bargaining between the relevant stakeholders in health service provision. Instead of establishing priorities from specific principles, each stakeholder or sub-group of stakeholders bring their own objectives to the bargaining table. Resources are allocated as a compromise between the desires of the stakeholders.

The limitations of this approach centre on who would be invited to participate in the bargaining process, and what criteria should be used for their selection, and relative status around the bargaining table. Furthermore, the principles upon which resource allocation decisions are made may not be made explicit to the general public. If such decisions are made at a national level, there may

be difficulties with implementing them at regional or local levels if certain stakeholders are opposed to them. For example, staff may be opposed to certain aspects of service planning, but would probably be relied upon to implement such plans.

2.4.2.5 Allocating resources by norms

In some countries, human resource planning for health care is conducted by establishing a set of normative ratios of health personnel to the population being served, e.g., one doctor per 20 000 population (WHO, 1993b). Once norms have been established, these are applied to local areas to allow target setting for service planning. For example, a norms approach has been suggested as a means of calculating mental health resources from need assessments in Canada (Kelly et al., 1995).

This approach has been criticised for the assumption that both needs and health service responses are the same for all areas (Power, 1992). Frequently norms are imported from other countries, and the rationale for establishing certain norms is not made explicit. Furthermore such norms may be difficult to apply in a timely manner and may become dated. Norms also run the danger of being idealistic, and not taking into account the financial limitations of current service provision (Monitor Company, 1996).

2.4.3 Approaches to resource allocation: conclusions

In the light of the disadvantages presented by each approach, it seems inappropriate to use any single method of resource allocation (Green, 1999). Indeed, it is difficult to consider how, for example, a norms or need-based approach could be developed, without some understanding of the way in which services are currently utilised.

Instead, it seems most appropriate to combine elements of these approaches, and to make explicit the method that is to be adopted, so that a transparent and rational approach to service planning can proceed.

Traditionally, a "norms" approach has been criticised for being a rigid, prescriptive approach, which does not take into account local service realities (Green, 1999;

Power, 1992). This thesis, however, is an attempt to reform the concept of norms, in a way that allows planners both to establish guidelines for mental health service planning, and to do so flexibly, in the light of various sources of information. These include information regarding need, demand, financial constraints, and pluralistic bargaining. This thesis presents less a set of rigid norms, than a methodology for developing norms, and for planning mental health services in a coherent rational manner.

The term "norms" is retained for specific reasons:

- In the light of the history of gross inequity in South African service provision, particularly racial inequity (as described in the introduction), there is a need to establish norms that allocate scarce mental health resources in an equitable manner. The use of norms is a conscious attempt to articulate what is "normal" in the context of the abnormalities and injustices perpetrated under apartheid (Foster et al., 1997b). There is an urgent need for a set of basic guidelines that prevent the ongoing abuse of fundamental human rights in psychiatric institutions in this country and the abandonment of psychiatric patients on the streets of our communities.

- Mental health service planning in South Africa has frequently been conducted in an incoherent, haphazard manner, in which the basis for resource allocation is not made explicit (Freeman et al., 1997). Developing a methodology for norms is a means of making mental health service planning explicit, and setting out the rationale for resource allocation in a transparent manner.

- The establishment of clear norms is an important political statement which draws attention to mental health service development in a context in which mental health needs are frequently seen as a luxury and not an important health priority (Ensink et al., 1997). Describing a set of norms draws attention to mental health services as essential and normal, not superfluous or a luxury.

- It may be argued that need is not a "positive" concept (i.e., it cannot be objectively measured) – it is a *normative* concept. The construction of the

need for services is founded on the particular values of those who identify need. For example, managed care organisations have a particular construction of mental health need, based on what makes their organisation profitable, tempered by the demands of their client base. By expressing service needs as norms, planners are able to make explicit what is frequently implicit in resource allocation decisions.

- The need for norms in South Africa has been further highlighted by requests from provincial mental health coordinators for guidelines on mental health service provision (Flisher et al., 1998).

A central argument of this thesis is therefore that mental health services in post-apartheid South Africa present planners with a situation in which norms are not only appropriate, but also necessary. The development of mental health service norms for severe psychiatric conditions in South Africa offers an opportunity to identify a set of clear service priorities, and to set targets for service development accordingly. The consultation process embedded in this method is crucial to its success. It should be emphasised in this context that norms are not conceptualised as being prescriptive. Norms provide recommended benchmark ratios, which allow planners to set targets for service development at provincial and local level.

To summarise, norms in this thesis are informed by several factors:

- needs, as identified by the model, making use of epidemiological and demographic data;
- demands, as identified by the extent of current service utilisation, from the process indicators;
- current service resources, as identified by the input indicators; and
- pluralistic bargaining, based on the consultation process undertaken during the course of this research.

Although specific economic indicators are not used in this study, both the consultation process and the review of current service resources drew attention to the financial limitations of current mental health service provision in South Africa, and have

therefore implicitly informed the setting of service norms. Clearly the more explicit development of economic indicators is an area for future research.

Proceeding on this basis, norms offer several benefits to mental health services:

- Norms that are closely linked to service indicators make it possible to measure inequity in service provision between regions and communities (Monitor Company, 1996).
- Norms enable an estimation of what resources might be needed to redress existing inequities.
- Norms can assist in adjudicating between competing mental health priorities.
- Norms and service indicators can promote the efficient use of resources.
- Norms can assist in implementing evidence-based practices, which are thought to be essential in routine mental health service settings (Drake et al., 2001).
- Norms can be used to motivate for more appropriate funding for services for mental health services.
- Norms and indicators are useful planning tools, which assist with decentralisation and the empowerment of local mental health managers.

Until this point guidelines have been developed in general health care for hospital services (Monitor Company, 1996) and primary health care (PHC) services (Rispel et al., 1996). Thus far, no attempt has been made to understand the particular service needs of people with severe psychiatric conditions, and to recommend levels of mental health service provision that are both appropriate and affordable. It is with this task that this research is concerned.

Literature on norms in mental health services is now reported according to each of the nine norms used in this study. Where possible, norms will be reviewed or converted into the "currency" of service indicators used in section 2.1, above. For example, where bed/population ratios where reported per 100 000 population, bed/population

norms will be reported in the same manner. This is both for reasons of consistency, and to allow for comparisons.

2.4.4 Bed/population norms

Internationally recommended bed/population ratios (i.e. norms) have varied substantially according to the particular settings in which they have been developed (Table 2.20). The WHO has recommended that western countries should have 100 psychiatric beds per 100 000 population where no community service infrastructure exists and a minimum of 50 per 100 000 where these services are in place (Freeman et al., 1994). Recommended bed/population ratios in the 1975 UK government white paper were for adult non-geriatric services specifically. The usefulness of these figures for the South African situation is limited by an absence of information as to how these figures were derived.

The reported WHO (1996) recommendations of 27 total beds per 100 000 population (Table 2.20) were presented as examples in a model for estimating the mental health resources required to serve a local population. More detail of this methodology is provided in discussion of the model in section 2.3 above, and in chapter 3.

The frequency with which studies summarised in Table 2.20 present ranges of bed numbers, rather than commit themselves to specific figures, is perhaps an indication of the extent to which authors are aware of the difficulty of recommending norms, and the variability between specific settings.

In addition to the figures summarised in Table 2.20, although WHO has not made specific recommendations for norms, examples of "standards" for bed/population ratios have been given as 50-80 per 100 000 population (WHO, 1996b). This seems to suggest that although WHO is reluctant to commit itself to global recommendations regarding bed numbers, it approves of countries or local areas developing "standards", norms or guidelines specific to their own situations. Indeed the model developed in Annex 5 of the same document encourages this (see section 2.3 above and chapter 3).

Table 2.20 Recommended bed/population ratios per 100 000 population in the literature

Source	Organisation	Ratio		
		Acute	Medium-long stay	Total
Freeman et al., (1994)	WHO	n/a	n/a	100*
Freeman et al., (1994)	WHO	n/a	n/a	50**
Thornicroft & Bebbington (1989)	UK Govt White Paper (1975)	50 (adult non-geriatric)	17 (adult non-geriatric)	n/a
Thornicroft & Bebbington (1989)	Royal College of Psychiatrists	44	n/a	n/a
Gudemann & Shore (1984)	n/a	n/a	15	n/a
Wing & Furlong (1986)	n/a	n/a	n/a	50 ("high dependency" places)
Hafner (1987)	n/a	50-80**	30-60**	80-140**
WHO (1996)	WHO	18**	9**	27**
Sainsbury Centre for Mental Health (1995)	n/a	40-45***	5-10 (medium)*** 0-5 (long)***	45-60***
Strathdee & Thornicroft (1992)	n/a	20-60	16-60 (hostels: night staff), 12-48 (hostels: day staff), 19-40 (lower support accomm)	67-208**

* Beds with no community services
** Beds with community services
*** Projections for the year 2000

According to Beecham (1995), in her overview of the historical development of mental health care in the UK, the first norms for service provision levels were produced as late as 1971. Subsequently the Department of Health and Social Security (Department of Health and Social Security (DHSS), 1975) made recommendations for services provided in the health and social services sectors (Table 2.21).

Table 2.21 *Recommended bed/population ratios per 100 000 population for the mentally ill in the UK (Department of Health and Social Security (DHSS), 1975)*

Sector	**Service**	**Ratio**
Health	District general hospital psychiatric unit (including assessment for elderly people)	50
	Day-activity unit	65
	Long-stay, elderly severely mentally ill	38-45
	Day care, elderly severely mentally ill	30-45
	'New' long stay	(To be determined)
Social services	Short-stay hostels	4-6
	Long-stay residential care	15-24
	Day care	60
	Long-stay, elderly mentally ill	(Residential care)

At present in the UK, according to Beecham (1995), government is reluctant to set out national guidelines, preferring that local service provision should reflect local variation in need. Since 1985, policy documents have been clear about the components of a comprehensive community service, but still offer little in terms of levels of provision. However, Wing et al., (1997) have developed a more detailed projection of bed/population norms in the year 2000 in the UK (Table 2.22).

Table 2.22 *Estimated need for specialist residential provision per 100 000 population, year 2000, excluding services for people with dementia (Wing, Sartorius, & Ustun, 1997)*

Type of accommodation		Ratio	Range
Staff awake at night:	Acute and crisis care	100	(50-150)
	Intensive care unit	10	(5-15)
	RSU/SHA	4	(1-10)
	Range of hostel wards	50	(25-75)
Other staffed housing:	High staff hostel/rehabilitation	75	(40-110)
	Day-staffed hostel	50	(25-75)
	Group homes (visited)	45	(20-70)
No specialist staff:	Supported bedsits	30	
	Direct access	30	
Total		158	

In South Africa, there has only been one attempt to develop norms for psychiatric bed numbers. These were set out by the relatively recent Hospital Strategy Project (Monitor Company, 1996). As noted earlier, its recommendations unfortunately categorise psychiatric inpatient facilities rather crudely under "chronic hospitals", together with tuberculosis hospitals, and recommend a blanket figure of 40 beds per 100 000 population for these "chronic" hospitals.

In addition to the argument for norms set out in section 2.3.3, above, the absence of appropriate guidelines for bed/population ratios in South Africa indicate that there is a need to develop bed/population norms for mental health services.

2.4.5 Staff/population norms

In a similar manner to bed/population norms, the WHO has provided examples of "standards" for staff population ratios of 2.5-10 psychiatrists per 100 000 population, and 5-40 psychiatric nurses per 100 000 population (WHO, 1996b; WHO, 1997).

More recently, however, the WHO has been reluctant to make specific recommendations and has encouraged countries to develop their own guidelines, using a recommended methodology developed by the WHO (WHO, 2001b). Included in some of the literature recommending staff/population ratios are methodologies for calculating these ratios (Rispel et al., 1996; WHO, 1996b). These methodologies are reviewed and included in the model for calculating norms and related human resource implications (see section 2.3).

In consideration of the psychiatric workforce in Georgia, Eveland et al., (1998) examine the application of two benchmark standards for the number of psychiatrists needed per 100 000 population: the standard developed by the Graduate Medical Education National Advisory Committee (GMENAC) and the Average Requirement Benchmark, to the supply of psychiatrists in Georgia. The GMENAC standard recommends 15.4 psychiatrists per 100 000 and the Average Requirement Benchmark 8.1. Results indicated a surplus of psychiatrists in the most populous areas of the state, where there is a proliferation of health maintenance organizations, and a deficit of psychiatrists in the state's less populated rural areas. The authors recommend refining of models that estimate psychiatric workforce need, and suggest a comprehensive model, that uses needs-based, demand-based and benchmarking approaches (Eveland et al., 1998).

There are currently no guidelines for mental health staff/population ratios in South Africa. The current shortfall and inequity in mental health staffing (see section 2.2.3), the use of staff/population norms in other settings, and the recommendations of the WHO (1996b) that countries develop their own guidelines for mental health staffing all indicate the need to develop staff/population norms.

2.4.6 Staff/patient norms

Beyond the usefulness of staff/patient ratios as an indicator of mental health service input, there is a pressing need for norms. This has been articulated in the international literature. For example, in the absence of minimally acceptable staff/patient ratios, psychiatric institutions and state authorities in the USA have received legal challenges about the constitutional adequacy of inpatient treatment. In this sense, courts have begun to set norms for staff/patient ratios (Way et al., 1992)! Sacks (1992) argues

that it is essential that staff/patient ratios are determined by clinical needs and not factors outside of planners' control such as availability of funds, public attitudes to psychiatric hospitalisation, and judicial intervention (Sacks, 1992). In the context of managed care, Faulkner et al., (1998) argue for a strategic approach to the development of a psychiatric workforce (Faulkner, Scully, & Shore, 1998). They suggest a 13-step approach founded on the assumptions that mental health needs of patients must receive adequate prioritisation, and that the psychiatric workforce should be sufficient in number and qualifications to meet those demands.

In some settings, methodologies for arriving at recommendations for staff/patient ratios have been developed. These methodologies will be discussed in some detail, since they cast light on efforts to develop recommendations for South Africa.

2.4.6.1 Methodology for estimating psychiatrist staffing needs

A methodology has been developed for estimating psychiatrist staffing needs for community mental health programmes in the USA (Goldman et al., 1994). The following assumptions underpin the methodology:

1. the psychiatrist works in a collaborative relationship with other clinicians such as nurses and case managers who work directly with the psychiatric patients;

2. all psychiatrists in these settings perform the "essential roles" of medical expert and medico-legal authority;

3. at least some psychiatrists perform "non-essential but desirable" roles such as participation in broader assessment and treatment planning activities, consultation with the treatment team, and liaison with other community agencies; and

4. estimates are attained through a process of good-faith negotiation involving all role players in the community team.

The steps in the process are as follows:

1. Estimate the average active caseload for the community mental health programme (including only patients in ongoing treatment seen by psychiatrists).

2. Subdivide this into categories of stable and unstable patients.

3. Estimate the average number of new intakes and emergency cases seen by psychiatrists per week.

4. Determine the number of minutes per week the psychiatrist should spend with patients in each of these 3 categories at minimum or desired levels of care.

5. Multiply the number of cases in each patient category by the appropriate minutes per week determined in step 4. Then add the results from the 3 categories to obtain the total minutes needed per week.

6. Determine the average number of minutes per week that psychiatrists should be available to provide direct services (estimated in authors' examples to be 1690 minutes).

7. Divide the total minutes from step 5 by the minutes per week from step 6. This yields the number of full-time equivalent (FTE) psychiatrists needed to meet minimum or desired service levels.

8. To calculate caseload per psychiatrist, divide the total caseload by the number of FTE psychiatrists required to meet the minimum or desired level (as calculated in step 7).

Goldman et al., (1994) provide examples of this methodology. They argue that this method both allows for the maintenance of a certain standard of service delivery as well as providing a valuable estimation of staffing needs and roles. It also allows for variation in clinical skill and experience.

2.4.6.2 Other methodologies for calculating staff/patient ratios

The method of Goldman et al., (1994) has been further developed by extending the workload to other non-psychiatrist clinicians (Morrison, 1998). Based on data from three Veterans Affairs outpatient clinics in the USA, where patients presented chiefly with serious Axis 1 disorders (primarily psychotic and mood disorders), Morrison calculated that 2 psychiatrists and 5 or 6 non-psychiatrists should be able to assess 400 new patients and provide ongoing care for 2300 patients a year in outpatient settings.

Sacks (1992) discusses the level of acuteness of a patient's illness as a measure for establishing acceptable staff/patient ratios in inpatient settings. The Joint Commission on Accreditation of Healthcare Organisations (JCAHO) in the USA has adopted this method. Problems with the method include that it requires a certain knowledge of the staff's level of skill, the dangerousness of the environment and the treatment approach. Sacks (1992) points out, for example that "more staff need not always be better" (p309): chronic schizophrenic patients may find excessive staff numbers over-stimulating, whereas patients diagnosed with borderline personality disorder might benefit from more staff attention and time.

Another method widely used by quality assurance experts for estimating baseline staff/patient ratios is the number of patient incidents (such as assaults, fighting, suicides, falls and abuse of patients by staff) (Sacks, 1992). This assumes that a patient incident is an untoward event that reflects inadequate staffing. This method has been contested, however. Way et al., (1992) found that there was no relationship between staff/patient ratio and patient incidents at an urban inpatient psychiatric centre in the USA. Other factors such as time of day, patient characteristics and milieu were more predictive of patient incidents. The authors conclude that small increases in numbers of ward staff may not reduce the number of patient incidents.

For South African purposes, the method of Goldman et al., (1994) is limited, chiefly because it assumes accurate figures of time taken for patient consultations. Under current information systems in an integrated system of service delivery in South Africa, this patient service utilisation data is difficult

to obtain. For this reason, the methods reviewed in section 2.3, above, appear to be most relevant for calculating staff/patient norms. These include the Guidelines for PHC Services in South Africa (Rispel et al., 1996), the Hospital Strategy Project (Monitor Company, 1996) and the WHO (WHO, 1996b). These methodologies are set out in more detail in the development of the model for this thesis (chapter 3).

2.4.7 Community/hospital norms

No studies could be found in which community/hospital norms are recommended. As discussed earlier (section 2.2.5), specific community/hospital ratios have not been developed as service indicators and norms have not been developed for similar reasons.

Although WHO has never specifically recommended community/hospital norms, the development of community-based mental health care and the integration of mental health care into primary health care has been strongly encouraged (WHO, 1990). This, together with the evidence supporting the development of community-based mental health care, indicates that guidelines for the development of community services, and the appropriate balance with hospital-based services, are important.

There is little consensus over what constitutes an optimal distribution of community and hospital services. However, a norm that is closely linked to existing community/hospital ratios, and informed by key stakeholders and estimations of need can provide a useful guideline for the monitoring and development of services in each sector. It is in these terms that the development of community/hospital norms is undertaken.

2.4.8 Bed occupancy rate norms

A strong case can be made for the development of normative bed occupancy rates. Historically in South Africa there has been little monitoring of bed occupancy rates in psychiatric institutions, and there have been gross infringements of patients' rights through overcrowding of such facilities (Porteus et al., 1998). In the UK, concern has been expressed at the high bed occupancy rates in acute psychiatric units in London, partly as a consequence of reduced bed/population ratios (Hollander, Tobiansky, &

Powell, 1990; Powell et al., 1995). Establishing a normative bed occupancy rate is a way of maintaining a balance between the most effective use of hospital resources and the maintenance of certain standards of care for psychiatric inpatients.

Relatively little literature was found which recommended levels of bed occupancy in psychiatric care. The Hospital Strategy Project, in developing indicators for general health in South Africa, argues that the optimal occupancy ratio for a general hospital is between 70% and 80% (Monitor Company, 1996).

In mental health, the WHO model (WHO, 1996b) assumes a bed occupancy rate of 85% for acute inpatient facilities and 95% for medium-long stay facilities. The methodology for calculating these bed occupancy rates is not stated explicitly, although the WHO model does state that the variables used reflect certain assumptions and that countries should substitute their own data where appropriate.

2.4.9 Admission rate norms

As with other indicators, and as argued in section 2.3, there is a pressing need to provide guidelines for the rate at which patients are admitted to South African mental health facilities, i.e., to develop norms for admission rates. In spite of the lack of precedent for this in the literature, this is necessary in order to make use of limited resources in a way that is both cost-effective and appropriate to the needs of the patient population.

No literature was found which provided recommended or normative admission rates.

2.4.10 Length of admission (Average Length of Stay: ALOS) norms

From the discussion of ALOS indicators earlier in this chapter, it is clear that there are numerous factors that inform length of stay. The calculation of norms or optimal lengths of stay is equally complex. Institutions in the USA often discharge patients because the patient's admission is considered to be too long and might be detrimental to the unit's average-length-of-stay statistics (an important marketing tool for managed care contracts) (Geller, 1997). In these instances the needs of the patient are lost in the use of length of stay as a norm, since the norm is influenced by the marketing needs of the health provider.

Borus (1986) notes that the US Federal Health Care Financing Administration in the Medicare Prospective Payment System based on Diagnosis Related Groups (DRGs) recommended a 10.8-day length of stay for resolution of psychoses in acute care units. This is lower than the WHO recommendations for average length of stay for acute care beds (Table 2.23). As with bed occupancy rates, the methodology for calculating the WHO recommendations for length of stay are not stated, but countries are encouraged to substitute their own data, where appropriate (WHO, 1996b).

Table 2.23 WHO estimates of average lengths of stay for acute care beds (WHO, 1996b)

Disorder	Average length of hospitalisation (days)
Schizophrenia	21
Acute psychosis	14
Major depression	30
Average	**19.4**

Nieminen et al., (1994) argue that although outpatient care has progressed significantly in most Western countries, and lengths of stay have become shorter, "the idea of a well-functioning therapeutic community or psychotherapy ward as an effective instrument for some severely disturbed patients, even for months, is not outdated" (p 471). The authors discuss optimal length of stay for a modified therapeutic community ward according to different treatment goals. The information is a useful example of the way in which length of stay can be calculated according to particular treatment goals. They define three types of hospitalisation (Nieminen et al., 1994):

1. Short hospitalisation (1-19 days), which has a goal of diagnostic evaluation, medication and first aid. Patients require orientation and social support, definition of goals, and learn therapeutic community working methods. When the family and network approach is used, this

time may be enough for some crisis patients with a supportive social network.

2. Intermediate length hospitalisation (20-80 days), which enables therapeutic interaction in dyadic, group, family and milieu settings. This is thought to be appropriate for problems of long duration, family conflict, and suicidal tendencies. The patient becomes involved in the therapy and forms bonds with other residents.

3. Long hospitalisation (over 81 days), which allows full use of psychosocial therapies for lone patients with severe and rigid psychotic symptoms or personality problems. Even at this level, the goal of the admission must, according to Nieminen et al., (1994), remain the integration of the patient into the community.

2.4.10.1 Factors associated with length of stay

Much of the literature which reports average length of stay in psychiatric facilities is concerned less with recommending optimal lengths of stay than with exploring the factors associated with length of stay (Choca, Peterson, Shanley, Richards, & Mangoubi, 1988; Chang et al., 1991; Nieminen et al., 1994; Stevens et al., 2001). These factors are important, not only for illustrating the usefulness of this indicator, but for describing the factors which need to be considered in recommending norms for length of stay. This is particularly so for patients with SPC, where specific factors such as age, symptomatology, and consequent service needs should be taken into account.

Chang et al., (1991) note that although length of stay has frequently been studied as an indicator of hospital resource utilisation, there is little consensus about which factors predict length of stay. Problems with generalising length of stay predictors include the influence of institutional factors (such as admission criteria and treatment policy) and the influence of clinical and demographic factors. Choca et al., (1988) argue that there are problems with using statistical models to predict length of stay in psychiatric hospitals, largely because of the range and complexity of factors that inform length of stay.

Chang et al., (1991) suggest that both the patient's clinical condition and level of functioning are important determinants of length of stay. These factors accounted for 20% of the variance in length of stay. Nieminen et al., (1994) report that residents with a better immediate outcome usually stayed 10-20 days longer in therapeutic units than those with an inferior outcome.

In spite of warnings against statistical modelling, some researchers have developed a statistical model for length of psychiatric in-patient treatment (Stevens et al., 2001). The authors show that length of stay follows a decaying exponential distribution. Not only diagnosis and medication, but also ethnicity, education level and being admitted to an open ward had strong independent effects on length of stay. It is suggested that routine analysis of hospital length of stay data might help to minimize non-illness related factors that contribute to longer lengths of stay.

While length of stay has steadily decreased during the deinstitutionalisation period, concerns have been raised about the effects on clinical outcomes. In a study of 206 depressed patients in three cohorts admitted between 1988 and 1996, Lieberman et al., (1998) found that although improvement during very brief admission was comparable to that in longer stays on many aspects of functioning, depressed patients discharged more quickly showed significantly higher residual levels of depressive symptoms and lower levels of global functioning. This placed them at greater risk for adverse outcomes in the period immediately following discharge (Lieberman, Wiitala, Elliott, McCormick, & Goyette, 1998).

Factors associated with increased length of stay are summarised in Table 2.24.

Table 2.24 Factors associated with longer length of stay in developed countries

Study	Place	Methodology	N	Factors associated with longer length of stay
(Chang et al., 1991)	CMHC in Northeast USA	Correlation coefficients and multiple regression analysis of length of stay	100 patients who exceeded median length of stay for facility	❑ Current diagnosis of schizophrenia ❑ History of schizophrenia ❑ Greater number of past psychiatric hospitalisations
(Nieminen et al., 1994)	Therapeutic community ward, Oulu, Finland	Linear regression analysis of lengths of stay	1330 patients with 2384 treatment episodes	❑ Young age ❑ Psychosis-level diagnosis ❑ Active, motivated participation in individual and milieu therapy
(Huntley et al., 1998)	Metropolitan St Louis Psychiatric Centre, Missouri, USA	Stepwise multiple regression analysis	760 patients discharged over two 6-month periods	❑ Primary diagnosis of schizophrenia ❑ Greater number of previous admissions ❑ Primary diagnosis of mood disorder ❑ Older age ❑ Secondary diagnosis of an alcohol or other drug-related disorder
(Federman et al., 2000)	Veterans Health Administration Hospitals in USA	Pearson product-moment correlation	99 hospitals	❑ Colder climate
(Stevens et al., 2001)	University of Tubingen psychiatric hospital	Survival analysis (Cox regression)	4706 consecutive admissions over 4 years	❑ Diagnosis of schizophrenia or depression ❑ Medication ❑ Ethnicity (alien) ❑ Low education level ❑ Admission to open ward

From Table 2.24 it is clear that patients with SPC tend to possess many of the characteristics that are associated with a longer length of stay (Table 2.24). In developing norms for length of stay in South African psychiatric institutions, care should be taken to ensure that norms are both appropriate and flexible. This is particularly so in South Africa, where no guidelines exist, and there is wide variability in service provision. The establishment of a norm for length of inpatient admission is an important step in ensuring both that limited mental health resources are appropriately used, and that the needs of patients for inpatient care of a clinically acceptable period are ensured.

2.4.11 Readmission rate norms

No studies could be located which recommended readmission rates. However, as with length of stay norms, a review of the factors involved in readmission is useful for understanding the particular characteristics of patients who may be prone to premature readmission. Specifically, for considering the service needs of patients with SPC, it is important to understand those factors which may precipitate high rates of readmission and plan the design of a norm for rate of readmission accordingly.

Reviewing the literature, Postrado and Lehman (1995) found that research has focussed on numerous factors in relation to rehospitalisation: demographic characteristics (such as age, gender, marital status, race, educational attainment, employment and legal problems such as arrests); and psychosocial factors (such as locus of control, family relations and social supports). Factors most extensively studied include diagnosis on initial admission, non-compliance with medication, timing of neuroleptic medication during the course of the illness, number of previous hospitalisations and aftercare services. From these, clinical predictors such as previous hospitalisation, diagnosis on admission and family relations have been most commonly associated with readmission. According to the authors, symptom severity offers a more refined predictor of rehospitalisation than diagnosis. Other reviews of the literature narrow the focus still further. According to some, the only factor consistently predictive of rehospitalisation is the number of previous admissions (Rosenblatt & Mayer, 1974). Vogel and Huguelet (1997), in a review of the literature

on rehospitalisation, confirm that the best predictor of revolving door phenomena is the number of previous admissions.

In addition to these factors, which focus largely on patient characteristics, broader systemic issues have been shown to play a role. Swett (1995) reports that short length of stay (encouraged by managed care policies) has been associated with increased likelihood of readmission within 30 days. Schanding et al., (1984) found that whether the patient's hospitalisation is publicly funded is a statistically significant demographic characteristic of the readmissions studied. The authors point out that this revives an old debate about the relationship between mental illness and socio-economic status, expressed in a new form: "does lower socio-economic status breed relapses of mental illness and readmissions to mental hospitals, or do mental patients drift to psychiatric hospitals because of their lower socio-economic status?" (p171). According to Schanding et al., (1984), this poses a further question: if patients treated by private psychiatrists are less likely to be readmitted, is this due to the fact that they are more likely to take their medication, or are community programmes (because they are usually attached to a hospital) unwittingly promoting dependence and a readiness to seek readmission?

By way of an answer to these questions, Fisher et al., (1992) found that the extensive development of community services in one region of Massachusetts did not seem to affect readmission rates, which remained largely the same in comparison with four other regions of Massachusetts. The authors offer various hypotheses in relation to this finding, focussing largely on patient and illness characteristics, and on service and admission/referral procedures. In a matched control study of 162 patients discharged from psychiatric hospitals in 4 social-psychiatric services in Germany over a 2.5 year period, case management did not significantly affect the rate of rehospitalisation nor the length of time in hospital in cases of rehospitalisation (Rossler et al., 1992).

However, Kent and Yellowlees (1994) argue that the results of their study indicate the need for targeted community resources, and assertive, continuous case management. Similarly, in analysis of a 5-year deinstitutionalisation programme at a psychiatric hospital in Adelaide, Australia, James (1987) found that in spite of reduced bed numbers and lengths of stay, readmissions over the 5-year period actually fell from

64% to 60%. He argues that this directly reflects the development of community support services over this period.

Table 2.25 summarises a range of factors associated with readmission as reported in the literature.

Table 2.25 Factors associated with readmissions in developed countries

Study	Place	Methodology	N	Factors associated with readmissions
(Nicolson & Feinstein, 1996)	36 bed psychiatric ward in inner city general hospital, Canada	Data collection of consecutive admissions over 6 months	316 consecutive admissions	❑ High number of previous admissions. ❑ Low GAF. ❑ Violent behaviour. ❑ Fewer environmental problems (Axis IV).
(Kent & Yellowlees, 1994)	South Australian Mental Health Services in Adelaide	Case notes of "heavy users" (patients with at least 3 admissions) over 3 years	50 "heavy users" with a total of 442 admissions	❑ Lack of insight or denial of illness. ❑ Relationship problems. ❑ Suicidal ideation. ❑ Non-compliance with medication.
(Ellison, Blum, & Barsky, 1989)	Acute psychiatric ward of Massachusetts General Hospital	Case notes of patients admitted over 6 month period	62 patients with at least 6 admissions	❑ Severe Axis I diagnosis or borderline PD. ❑ Previously received psychotherapy or psychotropic medication. ❑ Significantly more anxiety and impulsivity. ❑ A greater number of prior admissions.
(Kastrup, 1987)	Denmark	Multiple contingency analysis of revolving door patients taken from a nation-wide cohort of first time admissions over a year.	1397 patients with at least 4 admissions	❑ Younger patients (age 15-24) among schizophrenic males and females with PD or history of abuse. ❑ Close proximity to institutions (for males regardless of diagnosis, for females with PD). ❑ Presence of schizophrenia or substance abuse.

Table 2.25 Factors associated with readmissions in developed countries (cont'd)

Study	Place	Methodology	N	Factors associated with readmissions
(Vogel et al., 1997)	Geneva, Switzerland	Univariate statistical analysis of data on patients with multiple admissions over a 1 year period	284 patients with at least 3 admissions	For psychotic patients only (25% of sample): ❑ Co-morbidity of substance-related disorder. ❑ Longer duration of illness. ❑ Female sex. ❑ Younger age. ❑ Poor psychosocial adjustment during the past year.
(Swett, 1995)	Acute admissions unit, New Hampshire Hospital	Evaluation of patients at discharge using BPRS and NOSIE	189 patients admitted with acute symptoms	❑ Thought disorder ❑ Self-neglect ❑ Higher number of previous admissions
(Postrado et al., 1995)	Psychiatric hospitals in 4 American cities	Multivariate analysis of factors associated with readmission	559 patients with "severe persistent mental illness"	❑ Previous rehospitalisation. ❑ More severe symptoms. ❑ Patients' dissatisfaction with family relations.

For the purpose of developing norms and planning services, it is useful to identify the service-related factors that are associated with high and low admission rates in the literature. To summarise, an excessively high readmission rate appears to be associated with premature discharge, associated with bed shortages or excessively short lengths of stay, and inadequate community services to prevent premature readmission. Conversely, an excessively low readmission rate appears to be associated with an oversupply of beds, unnecessarily long lengths of stay and insufficient community based care (all of which have costly consequences). An optimal readmission rate, aside from possibly indicating the successful management of patients in the community, may also indicate sound clinical practice (including appropriate admission, length of stay and discharge policies), and good management of bed and staff resources.

The specification of optimal readmission rates or norms is a difficult step, however. Caution is needed to ensure that a "top-down" approach does not force already stretched resources into a preconceived and unrealistic model. But in spite of these cautions, evidence from the history of deinstitutionalisation points to the need for regulating rates of readmission both to protect the clinical needs of the patient and to ensure optimal cost-effectiveness of mental health services. This is particularly true in South Africa where there has been little research into rates of readmission (Gillis et al., 1986) and the consequences for patients, their families and the mental health service. Norms for rates of readmission are a useful means both of assessing levels of care (through related indicators) and recommending how it should be delivered.

2.4.12 Default rate norms

Beyond its usefulness as an indicator, the specification of a necessary maximum default rate or norm is a useful way of monitoring and improving the default rate and therefore maximising efficient and successful treatment of patients. More specifically, norms could control for preventable factors (such as inadequate referral procedures and staff inefficiency) in patient relapse and readmission, and could be linked to standards in this regard. This seems particularly appropriate in South African mental health care at present with little regulation of existing services, and the need to make efficient use of often-limited resources.

As with readmission rates, no literature was found which described normative default rates. However, as with length of stay and readmission rates, an understanding of the factors associated with default provides important information for the designing of normative default rates. Among other reasons, it indicates the extent to which patients with SPC may be more prone to defaulting, and consequently the need to modify a norm designed specifically for these patients. In addition, factors associated with higher default rates inform the planning of preventive interventions. Table 2.26 provides a summary of factors associated with high default rates in the literature.

Table 2.26 Factors associated with high default rates

Study	Place	Methodology	N	Factors associated with high default rates
(Cohen et al., 1995)	Outpatient psychiatric rehabilitation programme, Chicago	Analysis of variables which correctly predicted 81% of rehabilitation dropouts	112 chronically mentally ill patients	❑ Hostile, labile or bizarre affect. ❑ Diagnosis of personality disorder. ❑ Impaired orientation.
(Cohen et al., 1995)	Chicago	Literature review	n/a	❑ Poor outcome. ❑ Frequent emergency room use. ❑ Morale problems among treatment staff, including increased stress and high turnover rates.
(Gruneba um et al., 1996)	Cornell PHC Clinic, USA	Logistic regression analysis of data on consecutively referred patients	180 psychiatric outpatients	❑ Patients with mild distress. ❑ Patients with significant resistance to seeing a psychiatrist. ❑ Patients who had to wait longer between the referral and the appointment date.
(Chen, 1991)	Tampa, Florida	Literature review: missed initial appointments	n/a	❑ Younger age. ❑ Low socio-economic status. ❑ Long waiting period between first contact and scheduled appointment. ❑ Referral source.
(Chen, 1991)	Tampa, Florida	Literature review: outpatient dropouts	n/a	❑ Low socio-economic status. ❑ Younger age. ❑ Substance abuse.

Table 2.26 Factors associated with high default rates (cont'd)

Study	Place	Methodology	N	Factors associated with high default rates
(Chen, 1991)	Tampa, Florida	Literature review: medication non-compliance	n/a	❑ Side effects. ❑ Complexity of medication regime. ❑ Characteristics of the illness e.g. lack of insight, grandiosity. ❑ Problems in the patient-doctor relationship
(Sparr et al., 1993)	Portland VA Mental Health Clinic	Prospective analysis of all individual outpatient visits	1620 visits to 7 psychiatrists in 3 months	❑ PTSD. ❑ Substance abuse
(Killaspy, Banerjee, King, & Lloyd, 2000)	North Camden NHS Trust, UK	Prospective cohort study of randomly selected attenders and non-attenders	224 outpatients	❑ Lower social functioning ❑ More severe mental disorder

In addition to factors associated with default, Chen (1991) reviews the literature on factors associated with better aftercare compliance. These include:

1. history of prior hospitalisations;
2. greater clinical improvement during hospitalisation;
3. longer length of hospital stay;
4. therapist continuity;
5. fewer days between discharge and first scheduled aftercare appointment;
6. less denial of illness;
7. greater perceived need for medications; and

8. high scores on scales measuring helplessness-hopelessness.

Chen (1991) concludes that non-compliance is a broad issue that encompasses multifactorial and systemic phenomena. In spite of the fact that non-compliance can have systemic roots, patients most likely not to comply (across the literature reviewed) are young patients and substance abusers. In particular, young adult chronic patients have been the focus of considerable research, as a patient grouping with their own specific set of management problems. Chen (1991) suggests several strategies for counteracting these problems.

Several authors agree that shortening the waiting period between first contact and the initial appointment is effective in increasing compliance (Chen, 1991; Grunebaum et al., 1996). Other simple interventions such as mailed or telephoned reminders have been shown to improve attendance. Grunebaum et al., (1996) suggest that because most outpatient clinics are hampered by cost factors, that the relative costs of staffing or administrative changes to shorten elapsed time between referral and first appointment versus no-shows should be tested to assess overall cost-effectiveness.

Nicholson (1994) in a review of the literature argues that patients who miss their initial appointments differ from those who drop out after the initial appointment. This point reflects the complexity of factors associated with default, and the need to plan according to the needs of specific patient groupings. Sparr et al., (1993) argue that unless it can be demonstrated that outpatient treatment dropouts have high rehospitalisation rates, or other adverse sequelae, attempts to re-engage dropout patients should be left to clinical judgement and not adopted as policy. For some patients with SPC (e.g., those diagnosed with schizophrenia and bipolar affective disorder) it is likely that defaults will lead to rehospitalisation, but this is not true for all SPC patients, such as those defaulting from follow-up appointments in acute facilities, where they have been treated for acute crises. Therefore policy around defaults needs to be adapted to these needs. Clearly, some level of default should be catered for, without regarding it as costly or a risk factor. Studies that cost readmissions would be useful to give substance to these claims.

In conclusion, the literature describes a range of characteristics associated with higher default rates, the majority of which are associated with patients with severe psychiatric conditions. This should be kept in mind when designing a maximum acceptable default rate or norm, since it is likely that patients with SPC will display more defaulting behaviour than a general population of psychiatric patients. However, some authors argue that attempts to re-engage patients who default should not be adopted as policy, and that it is not always the case that defaulting leads to readmission. This implies that it may be problematic to develop a default rate norm for certain groups of patients. The population of SPC patients appear to be split in this regard. Chronic patients are likely to need readmission following default, but those only in need of short-term crisis intervention associated with acute psychiatric symptoms may well not. One solution might be to design a norm only for chronic patients, but this could not be regulated in an integrated system that does not channel patients to specific services on the basis of diagnosis or chronicity. Therefore the establishment of both indicators and norms for default rates for patients with SPC should be approached with caution, and an understanding of the many difficulties involved.

2.5 Manual

The development of a norms manual, as the fourth objective of this thesis, is a logical extension of the previous three objectives. Having (1) reported service indicators, (2) developed a model for estimating resources on the basis of mental health needs, and (3) proposed norms, based on the service indicators, the model and consultation with key stakeholders, a norms manual offers the opportunity to implement the proposed norms in provincial service planning.

The norms manual is designed to be read by provincial mental health coordinators, district health managers, hospital managers, and all those involved in the planning and management of public mental health services in South Africa.

Its goals are (1) to introduce a set of norms into mental health service planning and delivery, and (2) to assist provincial mental health coordinators, district health

managers and hospital managers to assess, plan and monitor mental health services according to the proposed norms.

The manual is designed as a practical, interactive tool. It provides a step-by-step guide to assessing, planning and monitoring the mental health service in provinces, regions or districts. By filling in the indicators from their own service as instructed, managers are able to compare mental health services in their area with the national baseline and target norms.

Such a manual has relatively little precedent in the formal academic literature. However, the WHO has adopted this approach in the development of a "guidance package" to assist planners in the development of mental health services in developing countries (WHO, 2001b).

This final objective is seen as a crucial outcome of this research, namely to ensure that the norms developed in this study contribute in a practical way to the development and delivery of mental health services in South Africa.

Chapter 3. Method

3.1 Introduction

3.1.1 Provincial questionnaires

A questionnaire (Appendix A) was sent to the mental health coordinators in each province. It elicited the data required to calculate ratios corresponding to each of the service indicators described in chapter 2. For example, data from the provinces regarding the numbers of each category of psychiatric staff was combined with the provincial population figures to yield staff/population ratios. Telephonic contact was maintained with all the provincial mental health coordinators during the time they were completing the questionnaire to ensure that difficulties were addressed timeously and misunderstandings prevented.

3.1.2 Provincial workshops

Over a period of five weeks, two-day workshops were held with the mental health coordinators, managers and service providers in each province (Appendix B). During these visits, an attempt was made to gather outstanding data and discussions were held on the methodology of calculating each norm, including the formulae and ratios used. During the workshops, several provinces made important contributions to the content of the norms, the methodology for deriving the norms, and the scope and terminology of the entire project. An attempt was made to gain the full participation of key provincial stakeholders, in the hope that the norms would become a tool that could be adopted and used for the specific needs of the provinces.

In spite of the full participation of provincial colleagues, there were difficulties in gathering the data to generate ratios from which norms recommendations could be made. For example, although it was hoped that the questionnaires would be completed and returned before the provincial workshops, this was in most cases not achieved. We were thus not able to discuss the actual ratios and norms recommendations during the workshops since provincial colleagues had not yet seen the indicators for their provinces. In addition, the data was often of poor quality, resulting in questionable service indicators in some instances. This limitation reflects

the inadequacy of existing mental health information systems, and should not be interpreted as an indictment of the provincial coordinators. In terms of methodological considerations for this thesis, this problem has meant that some norms recommendations have had to rely more heavily on the modelling methodology (see below).

The provincial workshops also provided a wealth of qualitative information regarding the day-to-day struggles of clinicians and service managers. Workshop participants spontaneously raised issues such as prescription privileges and the lack of clinical guidelines. Unfortunately this information cannot be reported within the confines of a study of mental health service norms. The results of the provincial workshops will therefore be reported only as they are relevant to the objectives of this study. For example, the recommendations of the provincial coordinators are used to inform norms, and qualitative reports on current levels of service provision provided during the provincial workshops are used to supplement data from the questionnaire, particularly when the questionnaire data appeared to be inaccurate. These areas will be identified as they are reported.

3.1.3 Consultations with experts and other colleagues

Selected national and international experts and other colleagues assisted with the methodology and substance of the norms development process (Appendix C). In some instances this consultation was conducted by submitting draft documents for comment. In other instances, one-to-one interviews were conducted. Where specific contributions were made, these are acknowledged in the text.

3.2 Service indicators

3.2.1 Bed/population ratios

a) Bed/population ratios were calculated using the following formula:

$$\text{bed/population ratio} = \frac{\text{number of psychiatric beds} \times 100\,000}{\text{total population}}$$

b) Bed/population ratios refer to the number of beds in hospital settings, not community residential facilities. Hospital settings may include specialist

psychiatric institutions and general hospitals (whether district hospitals or tertiary general hospitals).

c) Bed/population ratios refer to numbers of available beds (per unit of population), not numbers of occupied beds.

d) Bed/population ratios in this study were calculated per 100 000 total population, without specifying age categories. Some studies report age-specific bed/population ratios per 100 000 (for example bed/population ratios per 100 000 population aged 15 years and above (Hafner, 1987)). This needs to be taken into account when interpreting the figures from this research.

e) National and provincial population figures were taken from preliminary results of the 1996 South African household survey (Central Statistical Services (CSS), 1997).

f) Types of inpatient facility were defined according to length of admission. **Acute and emergency facilities** were defined by admission duration of up to three months. Those with longer admission durations were defined as **medium-long stay facilities**. The distinction between "acute" and "medium-long" stay facilities is in keeping with that adopted by the WHO (WHO, 1996b). Further rationale for this distinction is presented in the review of literature on acute and medium-long stay bed/population ratios in chapter 2.

g) This study is only concerned with public sector mental health services (see section 3.6), with the assumption that patients with severe psychiatric conditions rely almost entirely on the public sector for mental health care. Bed/population ratios are therefore reported for public sector services alone.

h) There may be a need to account for cross-border flow between certain provinces in the calculation of the denominator population. Reports from the provincial workshops indicated that many Gauteng mental health services, for example, provide care for patients from at least three other

neighbouring provinces, namely, Mpumalanga, Northern Province and North West Province. To adjust for this, the provincial coordinator for Gauteng suggested increasing the estimate of Gauteng's denominator population according to the following figures (Lazarus, 1998):

- Primary Care: 1 000 000
- Secondary Care: 3 000 000
- Tertiary Care: 5 000 000

However, this introduces difficulties in calculating the denominator populations of neighbouring provinces. There are no data regarding the number of people from each of the neighbouring provinces that rely on Gauteng for in-patient treatment. There is thus no way of knowing how the denominator populations of neighbouring provinces should be adjusted.

For the purpose of this thesis, it was suggested (M. Freeman, personal communication, 1998) that denominator populations correspond to the *existing* populations in each province. These data would inform the planning and development of adequate services within each province. In addition, a system of billing could be introduced at a later date whereby a province would be reimbursed by a patient's home province for services received.

Clearly, this debate cannot be resolved in the context of this thesis. Where appropriate, figures of combined provinces are provided, in addition to the provincial breakdown, to give a more realistic picture of current service provision (for example, in the reporting of bed/population ratios).

i) Bed/population ratios in this thesis are calculated across levels of service delivery in a "vertical" fashion. This means that psychiatric bed numbers were reported in a range of settings, including district hospitals, wards of general tertiary institutions or dedicated psychiatric institutions. Because of variation between provinces, particularly in the level of integration of mental health services into general health care, it was impossible to

stipulate the setting of the psychiatric beds. Bed/population ratios are therefore reported as global figures that include all levels of inpatient psychiatric care.

j) In certain instances data regarding the numbers of acute beds in general (regional and district) hospitals were not available. However, it was clear that psychiatric patients were being managed in these facilities for short admissions, usually 24 to 48 hours in duration. In these instances, bed numbers were estimated from the numbers of admissions, and lengths of stay that were provided in other sections of the questionnaire. Two bed occupancy rates were used (80% and 100%), with different numbers of beds generated for each. Variable bed occupancy rates were used to allow for variability in the use of the available beds. The estimated number of beds was calculated in this instance by using the following formula:

$$\text{number of beds} = \frac{(\text{number of annual admissions} \times \text{length of stay})}{(\%\ \text{bed occupancy} \times 365)}$$

k) Lifecare facilities were reported separately from medium/long-stay facilities. This is partly because these facilities frequently include patients from other provinces, and partly because Lifecare facilities would be more appropriately characterised as "long stay" facilities than "medium/long" stay facilities. Lengths of stay of 10 years and more have been reported in these institutions (Porteus et al., 1998).

3.2.2 Staff/population ratios

a) Staff/population ratios were calculated using the following formula:

$$\text{staff/population ratio} = \frac{\text{number of staff} \times 100\,000}{\text{total population}}$$

b) The scale and time frame of this project did not make the calculation of staff/population ratios for all staff categories possible. Instead, descriptive terms were used and staff/population ratios recommended for each of the following staff types:

- nurses;
- psychiatric nurses;
- psychiatrists;
- registrars;
- medical officers;
- clinical psychologists;
- intern clinical psychologists;
- occupational therapists (OT)
- occupational therapy assistants (OTA)
- pharmacists; and
- social workers.

Psychiatric nurses were defined as nurses who had specialist training in psychiatry and render a psychiatric service. Although "psychiatric nurses" do not denote an official nursing category, but rather a descriptive term, nurses who render a psychiatric service needed to be distinguished from other nurses who render general medical care, for the purpose of this study.

c) As with bed/population ratios, staff/population ratios are reported across levels of care in a vertical fashion. Psychiatric staff may be present in a range of settings, such as PHC clinics, CHCs, secondary level district hospitals, wards in general tertiary institutions, and dedicated psychiatric institutions. Because of the integrated system of delivery, it may be necessary in certain instances to describe staff as percentages of generalist staff or Full-Time Equivalents (FTE). The term **Full-Time Equivalent** is defined as the equivalent of a full-time mental health staff member. For example, if a general health worker spends 20% of her/his time in mental health work (including time spent seeing patients, making referrals, writing case notes, consulting with colleagues), then, for the purposes of this research, s/he is 0.2 of a FTE mental health worker. It would take 5 such general health workers to make up 1 FTE mental health worker. Similarly if an outpatient clinic is staffed by a number of psychiatrists, but

there is only ever one psychiatrist on duty at any one time, then that outpatient clinic is measured as having 1 FTE psychiatrist.

d) Issues relating to the calculation of the denominator population, such as units of population, age ranges, population data sources, cross-border flow and public sector services are dealt with in the same way as for bed/population ratios.

e) It was estimated that academic staff in the public sector spend approximately one third of their time with academic commitments such as teaching, research and university administrative commitments. It is therefore necessary to apply the following formula when interpreting the staff/population ratios to academic staff:

$$\text{Academic staff} = \frac{\text{Non-academic staff} \times 4}{3}$$

3.2.3 Staff/patient ratios

a) As with staff/population ratios, the scale and time frame of this project did not make the calculation of staff/patient ratios for all staff categories possible. Instead, descriptive terms were used and staff/patient ratios were recommended for each of the following:

- nurses;
- psychiatric nurses;
- psychiatrists;
- registrars;
- medical officers;
- clinical psychologists;
- interns;
- occupational therapists (OT)
- occupational therapy assistants (OTA)
- pharmacists; and
- social workers.

b) As with bed/population and staff/population ratios, staff/patient ratios are reported across levels of care in a vertical fashion. Because of the integrated system of delivery, it may be necessary in certain instances to describe staff as percentages of generalist staff or Full-Time Equivalents (FTEs) (see definition, above).

c) For the purposes of this research, staff/patient ratios were calculated for both hospital and community services.

d) In inpatient settings, with limited information systems, it was impossible to calculate staff/patient ratios according to fluctuating numbers of patients in the ward. Such a process would require cognisance of such factors as bed occupancy rates and recidivism, among others. For the purposes of this research, therefore, *staff/patient ratios in inpatient settings are equivalent to staff/bed ratios.* This was considered important to make literature on staff/bed ratios meaningful in the South African context. Staff/patient ratios for inpatient care are calculated not according to numbers of occupied beds (i.e. actual patients on the ward) but according to numbers of available places or beds on the ward.

Staff/patient ratios for inpatients were therefore calculated using the following formula:

$$\text{staff/patient ratio (inpatients)} = \frac{\text{number of staff}}{\text{number of beds}}$$

e) In *ambulatory care* settings, because of the difficulty of ascertaining numbers of actual patients from provincial information systems, it was necessary to calculate a ratio of staff to patient visits or attendances (rather than patients). This was done using the concept of **daily patient visits (DPV)**, namely the average number of patients who use the ambulatory service in a day. The following formula indicates how this was calculated:

$$\text{staff/patient ratio (ambulatory care)} = \frac{\text{number of staff}}{\text{daily patient visits (DPV)}}$$

3.2.4 Community/hospital ratios

3.2.4.1 "Community" and "hospital"

During the course of consultation with provincial mental health services, it emerged that there were two bodies of opinion about whether community services should include outpatient services offered at hospitals such as secondary (district) general hospitals, tertiary general hospitals, and dedicated psychiatric institutions. Some argued that outpatient services at hospitals should be included as community services because such a definition assists services to monitor the progress of deinstitutionalisation. If hospital outpatient services were not included in community services, the argument ran, the shift from the treatment of patients in inpatient psychiatric facilities to outpatient settings (whether in hospital or not) would not be reflected. A counterargument was that it is unusual for community services to include hospital facilities of any kind, and that OPD staff are usually included on hospital establishments.

There was consensus that:

- Hospital services include all inpatient psychiatric facilities (i.e. beds with professional staff on duty for 24 hours per day) found in the following settings: secondary (district) general hospitals; tertiary general hospitals; and dedicated psychiatric institutions.

- Community services include all psychiatric residential care outside of hospital settings (such as group homes, staffed hostels and staffed care homes) as well as ambulatory services offered at PHC level (such as clinics and CHCs).

Instead of attempting to resolve this debate, two definitions have been employed, in an attempt to accommodate both points of view. This thesis therefore provides two community/hospital ratios, defined according to each of the above arguments.

In **Definition 1**, outpatient services at hospitals are included as community services.

In **Definition 2**, outpatient services at hospitals are not included as community services, but rather as hospital services.

3.2.4.2 Staff and utilisation ratios

The community/hospital ratio was calculated in two ways, to address either staff distribution (input) or service utilisation by patients (process).

The ratio measuring **staff distribution** is defined as the ratio of staff employed in community settings to all staff, expressed as a percentage:

$$\text{community/hospital ratio (staff)} = \frac{\text{Number of community staff} \times 100}{\text{No. of comm. staff} + \text{no. of hospital staff}}$$

The ratio measuring **patient service utilisation** is defined as the ratio of the annual ambulatory care attendance rate per 100 000 population to the sum of this rate and the annual hospital admission rate per 100 000 population, expressed as a percentage:

$$\text{community/hospital ratio (patients)} = \frac{\text{ambulatory care attendance rate} \times 100}{\text{ambulatory care attendance rate} + \text{admission rate}}$$

Of course, each of the two definitions of hospital and community mentioned above will yield a different ratio.

Note that the term "community/hospital ratios" does not strictly speaking refer to the "ratio" of "hospital to community", since the denominator includes the number (or rate) comprising the numerator. However, the term community/hospital ratio was used to reflect the fact that a relationship between community and hospital-based services was being measured. The

expression of this relationship as a percentage was thought to be more readily understandable by service planners.

3.2.5 Bed occupancy rate

a) Bed occupancy rate was ascertained by calculating the average number of occupied beds in an inpatient facility during a month, dividing it by the total number of beds, and reporting this figure as a percentage (Monitor Company, 1995):

$$\text{bed occupancy rate (\%)} = \frac{\text{average number of occupied beds} \times 100}{\text{number of available beds}}$$

b) The integration of psychiatric inpatient care into general hospitals makes the measurement and definition of bed occupancy a complex issue. In some district hospitals throughout the country, beds were not defined as psychiatric beds in any formal sense, although brief admissions of psychiatric emergencies was relatively common. In these cases, bed numbers were estimated on the basis of admissions and bed occupancy, set at 80% or 100% (see section 3.2.1, above). The issue of how to calculate bed occupancy when bed numbers are themselves estimates based on variable bed occupancy (at 80% or 100%) was a challenging methodological issue for the study. This was resolved by using both levels of bed estimates in reporting the numbers of "available" beds. The numerator for the bed occupancy rate was obtained using the reported numbers of beds occupied by psychiatric patients per month, which was converted to the average occupied beds per day. Two denominators were used, corresponding to the two estimates of available beds. This produced two sets of bed occupancy rates.

This method appears to have been adequate for the present purposes, at least partially because the majority of beds are located in dedicated wards or institutions. However, with increasing levels of integration in district hospitals, this problem is likely to persist. The development of provincial information systems needs to address this issue in the monitoring of bed occupancy norms, particularly in district hospitals.

3.2.6 Admission rates

a) Admission rates were defined as average annual admissions per 100 000 population (Hafner, 1987). These were calculated using the following formula:

$$\text{admission rate} = \frac{\text{number of inpatient admissions per annum} \times 100\,000}{\text{total population}}$$

b) As with earlier ratios, admission rates were calculated per 100 000 total population, and were not specified according to particular age ranges. Where the literature does make age specifications, this discrepancy is noted.

c) Other issues relating to the calculation of the denominator population, such as units of population, cross-border flow, and private sector services, were dealt with in the same way as for bed/population and staff/population ratios.

d) Admission rates were also calculated for all inpatient facilities across levels of service in a vertical fashion. In reality, with a horizontal integrated system of service delivery, patients with SPC may be admitted to a range of settings from district hospitals to wards in general tertiary institutions and dedicated psychiatric institutions. Admission rates therefore provide a global picture of the rate at which SPC patients are admitted to a range of psychiatric facilities.

3.2.7 Length of admission (Average Length of Stay: ALOS)

a) Average length of stay is defined as "the average length of time (in days) that a patient spends at the hospital before discharge" (Monitor Company, 1995).

b) Some authors argue that the median length of stay (not the mean or mode) is the most accurate measure for recording the average length of admission, chiefly because of the exponential decay of the length of stay of any given cohort of patients (Priest et al., 1995; Stevens et al., 2001).

The median length of stay was therefore used to calculate average length of stay in this study. In responding to the provincial services questionnaire, it was not always clear whether a mean or median figure was provided by the provincial coordinators. Nevertheless, medians of the figures that were reported were calculated in the entering of the data onto spreadsheets (see Appendix D).

c) Another important limitation regarding the provincial data was that lengths of stay were not requested according to types of facility in the questionnaire. This conflated the ALOS for acute and medium-long stay facilities in psychiatric institutions, and results provide an unrealistic pattern of inpatient care. Figures for general hospitals, which are mostly acute facilities, provide a more accurate picture of acute care in these facilities.

d) As with other indicators, lengths of stay are calculated for all inpatient facilities across levels of service in a vertical fashion. In reality, with a horizontal integrated system of service delivery, patients with severe psychiatric conditions may be admitted to a range of settings from CHCs to secondary level district hospitals to wards in general tertiary institutions and dedicated psychiatric institutions. Average length of stay therefore provides a global picture of the average amount of time which SPC patients spend in psychiatric inpatient facilities.

3.2.8 Readmission rates

a) Readmission rates refer to the percentage of patients discharged from inpatient care who are readmitted within a year. Expressed as a formula, readmission rates were calculated as follows:

$$\text{readmission rate (\%)} = \frac{\text{number of patients readmitted per annum} \times 100}{\text{number of patients discharged per annum}}$$

b) Unfortunately, following early response to a draft of the questionnaire, it was decided that provincial coordinators would not be in a position to provide data regarding readmissions, as this information was not routinely

available from hospitals. This item was therefore not included in the questionnaire that went out to the provinces. Nevertheless, on the basis of the literature, suggestions from provincial coordinators and data from one province, it was decided to persist with developing a norm for this indicator. The status of this norm, which could not be informed by data in all provinces, should be interpreted accordingly (see chapter 5 for further discussion).

3.2.9 Default rates

a) Non-compliance with psychiatric treatment takes several forms, including failure to keep initial appointments, use outpatient referrals from emergency services, keep aftercare appointments following hospitalisation, remain in treatment, and take prescribed medication (Chen, 1991). Because of limited information systems in South African mental health care, it was not possible to develop indicators for each of these areas. Default rates in this thesis therefore focus exclusively on patients' failure to attend booked appointments at clinics or OPDs. Default rate was defined as the percentage of patients who default from their treatment in this regard:

$$\text{default rate (\%)} = \frac{\text{number of patients who fail to keep appointments} \times 100}{\text{number of patients booked for appointments}}$$

The denominator is thus the sum of the attenders and the defaulters.

b) As with other indicators, default rates were calculated for all outpatient facilities across levels of service in a vertical fashion. In reality, with a horizontal integrated system of service delivery, SPC patients may default in a range of settings from clinics and CHCs to outpatient facilities at secondary level District hospitals, General tertiary institutions and dedicated psychiatric institutions. Default rate therefore provides a global picture of the average rate at which SPC patients default from psychiatric outpatient treatment.

3.3 Model

On the basis of information from the literature, a model was developed for calculating the mental heath services and human resources required to care for people with severe psychiatric conditions in a hypothetical population of 100 000 people in South Africa. Using a model developed by the World Health Organisation (WHO) (WHO, 1996b) as a framework, the model draws on South African health service literature and guidelines (Lazarus, Freeman, & Rispel, 1995; Monitor Company, 1996; Rispel et al., 1996) as well as the data from the provincial questionnaires to produce an estimate of the specific mental health service needs of patients with severe psychiatric conditions.

It has been shown elsewhere that the adjustment of service assumptions significantly affects the outcome of any modelling process (Faulkner & Goldman, 1997). There are few generally accepted assumptions about mental health service needs. For this reason, assumptions need to be stated clearly and justified, if a model is to be useful as a tool for service planning and management. The model was developed in a spreadsheet format using Microsoft Excel® and offers considerable flexibility within this environment (see Appendix E). It can be adapted to specific settings according to the point of entry, by adjusting any of the following assumptions or variables:

1. population size;
2. age distribution;
3. prevalence;
4. levels of coverage;
5. attendances at ambulatory care facilities;
6. ambulatory care utilisation rates;
7. length of consultation;
8. ambulatory care workloads;
9. beds (acute and medium-long stay);

10. staff (inpatient and ambulatory care);

11. lengths of stay;

12. admission rates; and

13. bed occupancy rates.

These variables can be adjusted by using estimates, or by substituting existing service data. It therefore allows for a combination of existing data and estimates of need or service provision, to calculate beds and staffing requirements. A diskette with the model as a Microsoft Excel® file accompanies this thesis.

For this study, no community residential facilities were developed within the model. This is partly because methods for calculating community residential beds were not set out in the WHO model. Furthermore, there were few data to guide the calculation of community residential bed numbers in South Africa. Although information regarding community residential facilities was requested in the questionnaire, only one province (Gauteng) reported community residential facilities for mental health care. The model does, however, retain sufficient flexibility to include this variable at a later date. In the interim, the goal of this model is the provision of minimal hospital inpatient beds and concerted community-based ambulatory care services.

To clarify how the results of the model were calculated, the steps in the modelling process are now set out.

Step 1. The modelling process begins with a hypothetical population. The WHO model (WHO, 1996b) specifies that the population should fall within an authentic "natural" or administrative area; should be large enough to make services cost effective while providing a range and variety of services; should be small enough to be managed easily; and should be such that services are easily accessible to the entire population, with ease of transport a priority.

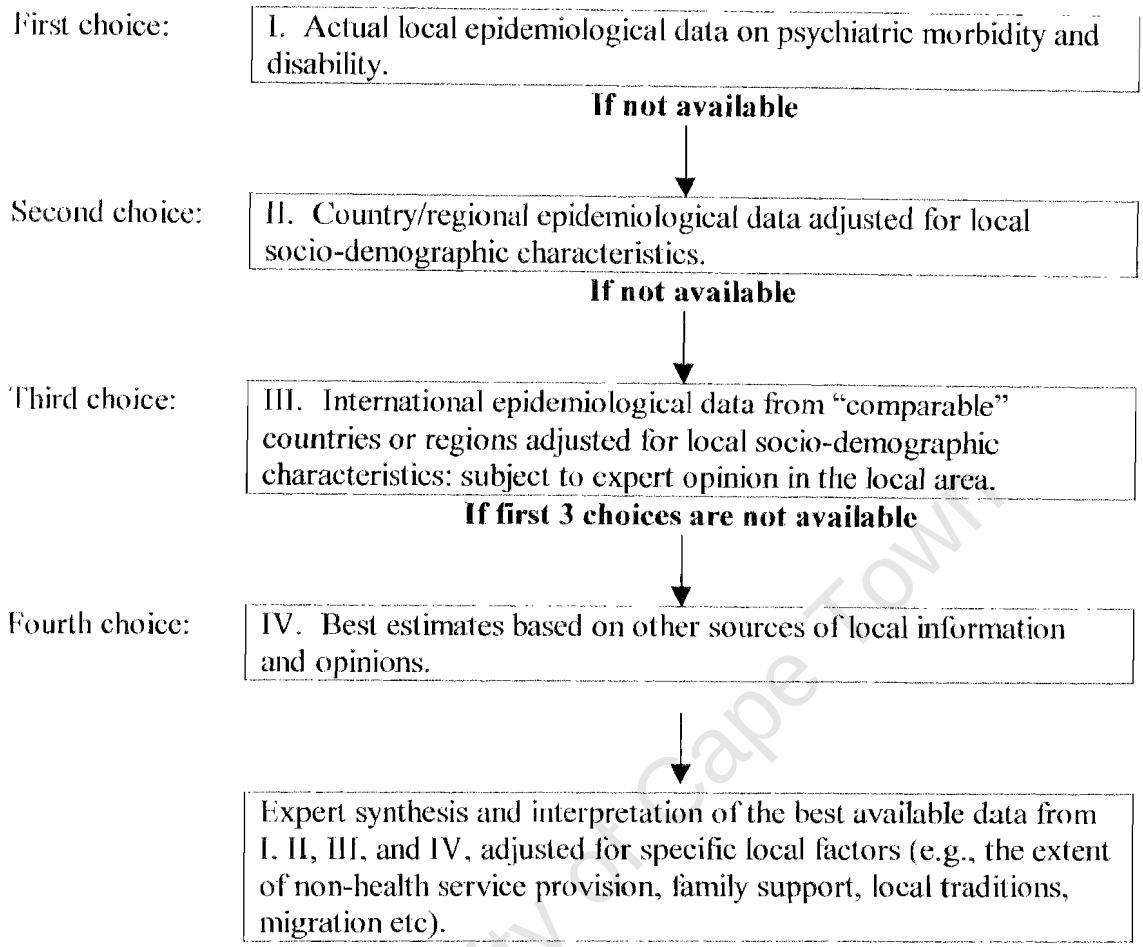
Using these criteria, a hypothetical population of 100 000 was thought to be the most appropriate for South African services for the following reasons.

- The population of 500,000 suggested by the WHO is too large for areas in South Africa with low population densities where access to services and transport are limited.
- Preliminary guidelines for the catchment population of health services in South Africa recommend 10,000 for clinics and between 100,000 and 180,000 for major health centres providing 24 hour care (Rispel et al., 1996). Although exact sizes of districts vary considerably, the figure of 100 000 approximates a district in many instances.
- A population of 100 000 is large enough to facilitate economies of scale and provide a range of services, with the possible exceptions of medium-long stay and forensic inpatient services. For these specific services, the needs of five districts could be combined (see step 4 of the modelling process, below).
- Numerically, the figure of 100 000 is easy to convert to exact district, regional and provincial figures in the use of this model as a planning and management tool.
- Most of the literature on psychiatric bed needs and much of the literature on staffing and admission rates report figures per 100 000 population, which facilitates comparisons.

The population of 15 years and over is particularly important for severe psychiatric conditions since the peak age of onset for schizophrenia in males is 15-25 years (Kaplan, Sadock, & Grebb, 1994). In South Africa, 63.65% of the population is aged 15 years or older (Central Statistical Services (CSS), 1997), corresponding to 63,650 people out of a hypothetical population of 100,000.

Step 2. Epidemiological data are used to measure the service needs of people with severe psychiatric conditions. Thornicroft and Tansella (1999) recommend a series of choices that can be made when using epidemiological data to assess service needs (Figure 3.1).

Figure 3.1 *Making practical choices about the most feasible source of epidemiological data*



Source: adapted from (Thornicroft et al., 1999)

To date no comprehensive epidemiological surveys have been conducted of psychiatric disorder among South Africa's adult population. Community studies have been conducted for specific populations such as a study of the prevalence of psychiatric morbidity in the adult population of a so-called coloured rural village (Rumble, Swartz, Parry, & Zwarenstein, 1996), or specific populations and conditions, such as the prevalence study of minor psychiatric disorders in an adult African rural community (Bhagwanjee, Parekh, Paruk, Petersen, & Subedar, 1998), and a study of post-partum depression in a peri-urban settlement (Cooper et al., 1999). The Medical University of Southern Africa (MEDUNSA) is reportedly conducting a major national study of mental health needs and disorders (Thom, 2000).

Prevalence estimates were therefore obtained from the National Co-morbidity Survey (NCS) (Kessler et al., 1994b), an example of "choice III", above. This was done for several reasons:

- suitable South African data are not available (Parry, 1996);
- the WHO model makes use of the NCS figures (WHO, 1996b);
- some community surveys in developing countries show that the magnitude of psychiatric disorders does not differ from that found in developed countries (Levav, Restrepo, & Guerra de Macedo, 1994);
- the NCS findings report 12 month prevalence rates, appropriate for the methodology of this study;
- the NCS study is relatively recent; and
- it has high quality methodology in terms of instrumentation, sampling strategy and sample size.

Using this prevalence data, in the hypothetical population of 100 000 people, mental health services for severe psychiatric conditions should be available to at least 3004 people in a year (approximately 3% of the population) (Table 3.1).

Table 3.1 *Expected severe psychiatric conditions for people aged 15 years and over in a population of 100,000*[1]

Disorder	One-year prevalence (%)	Expected in population (n)	Severe cases[6] (%)	Expected severe cases (n)
Non-affective psychosis[2]	0.5	318	100	318
Bipolar Affective Disorder[3]	1.3	828	100	828
Major depression[4]	10.3	6,556	20	1,311
Anxiety disorder[5]	17.2	10,948	5	547
Total	29.3	18,650	-	3,004

[1] Based on figures from the National Comorbidity Study, using DSM IIR.
[2] Non-affective psychosis includes schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, and atypical psychosis.
[3] The figure reported here indicates the prevalence of a manic episode.
[4] The figure reported indicates the prevalence of a major depressive episode.
[5] This includes panic disorder, agoraphobia without panic disorder, social phobia, simple phobia, and generalised anxiety disorder.
[6] The percentage of severe cases was based on the WHO recommendations.

This 3% prevalence rate is an under-estimate since substance-induced psychotic disorder, brief psychotic disorder, mental disorders due to a general medical condition, posttraumatic stress disorder (PTSD) and obsessive-compulsive disorder are excluded. Trauma is particularly significant in South Africa, where high rates of PTSD have been detected in people who survived human rights violations under apartheid (Kaminer, Stein, Mbanga, & Zungu-Dirwayi, 2001). There is also the presence of a growing number of refugees from other African countries (Crush & MacDonald, 2000). As studies in other settings have shown, refugees have very specific mental health needs that need to be addressed by service planners (Brundtland, 2000).

Nevertheless, this figure is in keeping with other findings that indicate an annual prevalence of 2.8% for severe mental disorders in the USA (US National Advisory Mental Health Council, 1993). In developing countries estimates of the annual incidence of severe acute conditions have been 0.5 per 1000, and of chronic psychiatric disorder 5 per 1000 in the general population (WHO, 1984).

Step 3. In keeping with the guidelines for PHC services in South Africa (Rispel et al., 1996), two levels of service coverage were calculated: a minimum level of 30% coverage, below which services would be unacceptable; and a goal of 100% coverage. Each of these levels is applicable for ambulatory (or outpatient) and inpatient care.

Expected annual attendances at ambulatory care facilities were calculated using the following formula:

> Annual visits = prevalence × target population × coverage × minimum annual visits per person.

where the minimum annual visits/person is 12 visits per annum, as recommended by the South African Guidelines for PHC services (Rispel et al., 1996).

Daily patient visits (DPV), namely the average number of patients who make use of an ambulatory care service per day, were calculated using the following formula:

Daily patient visits (DPV) = total annual visits ÷ working days per year

In keeping with the WHO model, and the calculation of indicators (see section 3.2.1) inpatient services were divided into acute beds and medium-long stay beds. Acute beds are intended for short-term management of patients in a state of crisis or relapse, with a view to stabilising the patient to a point where treatment can be continued on an outpatient basis. It was assumed that a limited number of medium-long stay psychiatric beds are necessary for the management of severe chronic conditions (Clifford et al., 1991). The number of beds required was calculated using the following formula:

Beds = no. of severe cases × % needing hospitalisation × (ALOS ÷365) × rotation factor,

where ALOS = average length of stay, calculated as the median days of admission, and the rotation factor allows for a period when the bed is unoccupied between discharge and a new admission. The WHO model recommends a rotation factor of 1.15 for acute beds, and 1.05 for medium-long stay beds, implying bed occupancy rates of 85% and 95% respectively (WHO, 1996b). The WHO model concedes that the percentage of patients who will require hospitalisation during a year can be adjusted according to local findings, and does not give a source for its own figures. The estimated percentage of patients who would require hospitalisation during a year is broadly consistent with the Epidemiological Catchment Area (ECA) prospective 1-year prevalence rates of disorders and services (Regier et al., 1993).

In calculating the number of beds for medium-long stay facilities, the assumption of the WHO was followed that 5% of patients suffering from schizophrenia would need medium-long stay beds with an average length of stay of 180 days (WHO, 1996b). Patients suffering from bipolar disorder were added, assuming that 0.5% would need medium-long stay beds. This is consistent with previous estimates of the percentage of chronic patients who require ongoing long term care (Department of Health and Human Services Steering Committee on the Chronically Mentally Ill, 1981; Hafner & an der Heiden, 1989).

Step 4. In keeping with the WHO model, human resources were calculated only for professional staff. Maintenance, kitchen, laundry, cleaning and clerical staff would need to be added to the recommended figures. In South Africa, public mental health services at primary and secondary level are frequently integrated with general health care and delivered by general health workers. To calculate the amount of time a generalist health worker spends with psychiatric work, the percentage of time generalists spend delivering a psychiatric service is multiplied by the total number of generalist staff. When this is added to the number of full time mental health workers, this gives the total number of full-time equivalent (FTE) mental health workers.

Workload for psychiatric staffing has been calculated by some researchers according to standard time estimates for specific treatment procedures (Faulkner et al., 1997; Morrison, 1998). This approach has received criticism in South Africa (Rispel et al., 1996; Gray, 1998), because of the variability of the procedures, skill level and experience of staff in clinical work. Instead, calculation according to workload, i.e. numbers of beds covered and numbers of patients seen, is used. Although this method is relatively crude compared to those developed elsewhere (Goldman et al., 1994), it is the most feasible within the constraints of South African mental health service information systems at present. It is also a method that has been used to calculate standard workload by the WHO in its development of workload indicators for staffing need (WISN) (Shipp, 1998). Indeed Shipp (1998) argues that either time estimates or activity rate (e.g., number of patients seen) are acceptable for calculating staffing requirements.

For ambulatory care services, human resources can be calculated using the following formula:

FTE staff = (DPV × working days per year) ÷ (Consultations per day × staff working days per year)

Values for these calculations were obtained from South African workload studies at primary care level (Rispel et al., 1996). Staff working days per year were calculated after holidays and sick leave. Consultations per day were calculated from observations of work patterns and assume that 44.3% of staff time is spent in direct patient contact (Rispel et al., 1996). These estimations do not cover home visits, follow-ups of missed appointments or outreach. This work is essential within the framework of community-based care with an emphasis on rehabilitation of patients with severe psychiatric conditions. The WHO model's suggestion that a further 30% of staff be added for home visits and other outreach activities was adopted.

For inpatient services, human resources were calculated for nursing staff at nurse/bed ratios of 0.5 (acute) and 0.3 (medium-long stay). These ratios and the numbers of other clinical staff are drawn from the WHO staff distribution recommendations (WHO, 1996b). FTE nursing staff for inpatient care are therefore calculated as follows:

FTE inpatient nursing staff = number of beds × staff/bed ratio

The WHO model makes human resource recommendations for a 45-bed medium-long stay unit. Medium-long stay beds per 100 000 could not be served in isolation, since bed numbers would be too low for a feasible functional unit (Monitor Company, 1996). It would thus be necessary to combine the bed needs of several districts/regions. For this modelling process, the needs of 5 such districts or regions were combined.

In terms of the professional disciplines involved in mental health care, and the distribution of the total staff among these disciplines, the WHO model was used as a

guide. The role of occupational therapists is given added emphasis, given evidence of their possible contribution to rehabilitation services, particularly in developing countries (Pradad, Bhagat, & Padankatti, 1991).

It was intended that provinces who do not have the recommended disciplines should use some flexibility, and explore the possibility of substituting staff where appropriate, in keeping with WHO recommendations made elsewhere (WHO, 2000). As an example, innovations in staff roles have greatly assisted resource shortages in an inner city mental health service in Toronto (Read & Gehrs, 1997). In addition, community support systems could be used where appropriate. This approach has been used with good effect in a variety of settings. For example, in Botswana, as noted in the discussion of community/hospital ratios in chapter 2, crucial to the success of the programmes were strongly established extended family networks and a system of 300 community level Family Welfare Educators (FWEs) to supplement the existing one psychiatrist and 8 psychiatric nurses (Ben Tovim, 1987). Similarly in London, befriending services have been shown to be a useful adjunct to services for chronic depression among women (Harris, Brown, & Robinson, 1999).

3.4 Norms

The formulae used to calculate each individual norm were the same as those for the corresponding indicator. For example, bed/population norms were calculated using the same formula as bed/population ratios. As stated in chapter 2, the distinction between indicators and norms is that whereas the former reflects existing service levels, the latter recommends service levels.

The development of norms is far from being an exact science and needs to take account of a multitude of variables, including local needs, policy shifts, and current service realities (see chapter 2). In an attempt to address these, the proposed norms were formulated taking into account several factors, *viz.*:

1. international existing service ratios;

2. international recommended service ratios (i.e., norms);

3. the current situation in the provinces (from service indicators);

4. opinions of key provincial figures and experts; and

5. computerised modelling of a hypothetical population.

Provincial workshop participants and colleagues stressed the need to develop norms that were flexible. This was partly because of the anticipated variability in levels of service coverage between and within provinces, and because of the need to adjust norms according to specific local variables (for example, according to predominantly urban and predominantly rural provinces).

To address the need for flexibility, a distinction was made between baseline and target norms.

3.4.1 Baseline Norms

The development of *baseline* norms was guided by the following principles.

1. A baseline norm is, as a rule, guided by the existing national service indicators (e.g., the total national acute bed/population ratio). At a fundamental level, therefore, the goal of the baseline norm is the establishment of national *equity*. This implies that provinces with ratios that are below this level offer an unacceptably low level of service. The first task is the improvement of services across the country to meet baseline norms and ensure equitable levels of care between the provinces.

2. Where the national mean seems exceptionally low (or high) in terms of specific trends in policy and service development, the baseline is adjusted accordingly. For example, there is currently a policy shift away from long-term custodial inpatient care towards short-term inpatient care and ongoing management of patients in the community. This implies that the baseline level for acute beds should be set higher than the national average and the baseline level for medium-long stay beds at a lower level than the national average, in order to shift the pattern of care away from its present position.

3. Where appropriate, baseline levels are modified in the light of qualitative observations during the provincial workshops and the recommendations of the provincial mental health coordinators for their provinces.

3.4.2 Target Norms

The recommendations for *target* norms are based on the following principles.

1. The first principle of target norms is that they are based on estimations of *need*. Evidence from the literature and patterns of existing service delivery indicate that there is substantial unmet need for services among South Africans with SPC.

2. In these terms, target norms imply service *development*, and the movement, over time, towards providing for the mental health service needs of people with severe psychiatric conditions.

3. In the context of this thesis, this implies that target norms are based on the proposals of the *model* for mental health care, which describes services based on estimations of the prevalence of severe psychiatric conditions, adjusted to local variables.

4. Like the baseline norms, these recommendations need to be adjusted according to specific considerations. These include policy shifts such as increased acute inpatient facilities and decreased medium-long stay facilities, as well as increased training, support and development of staff who provide mental health services at primary care level. They also include the specific recommendations and concerns of provincial mental health coordinators, and the numerous parties consulted during the course of the norms development process.

The distinction between baseline and target norms is not to be confused with the stipulation of 30% and 100% coverage levels in the model. The 30% and 100% coverage levels in the model were developed to assess the resource consequences of specific coverage levels, based on suggestions from the primary care guidelines (Rispel et al., 1996) and not the distinction between baseline and target norms. The

modelling process takes place prior to the final recommendation of norms, and target norms are based on the 100% coverage recommended by the model. Obviously, this could be adjusted in future modelling and service planning.

3.5 Manual

The final Norms and Standards report was handed to the Directorate: Mental Health and Substance Abuse on 30 June 1998. At a national meeting of provincial coordinators on 23 July 1998 it was suggested that a user-friendly norms manual be drawn up to present the provisional norms in a more accessible way, and provide a tool for the implementation of these norms. The provisional format for the manual was presented at a national meeting of provincial mental health coordinators in November 1998. A draft copy was distributed for comment to all provincial mental health coordinators in late January 1999 before the final draft was completed.

The format and layout of the manual were considered by mental health coordinators and local managers to be an important element of the manual. By providing material in a way that was accessible and user-friendly, it was hoped that this would contribute to the use and implementation of the norms in provincial, regional and local service planning. To assist with this, the manual includes algorithms and sections where local planners can enter their own data, and then calculate their own local service targets. For these reasons, the manual is presented in Appendix F in the same format as it was presented to provincial services.

3.6 Exclusions

There are many areas of mental health service provision that this research might encompass. For this reason, clarification is needed regarding which aspects are excluded. This study is concerned mainly with the planning of mental health resources for assessment, treatment, maintenance and rehabilitation of adults (aged 15-64 years) with severe psychiatric conditions, and does not include the following areas:

- Programmes specifically aimed at mental health prevention and promotion. It should be noted, however, that prevention and promotion might occur as part of routine assessment, treatment, maintenance and rehabilitation activities.

This study does not exclude prevention and promotion activities that may occur during the course of these activities.

- Programmes specifically aimed at mental health advocacy or reducing stigma. As with prevention and promotion, advocacy and the reduction of stigma may be part of the routine work of assessment, treatment, maintenance and rehabilitation activities, and this aspect is not excluded from this study.

- The quality of mental health services. Healthcare quality has been defined as "the degree to which healthcare services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Institute of Medicine (IOM), 2001). The development of Quality Assurance (QA) tools or standards was undertaken as part of the standards aspect of the Norms and Standards project (Flisher et al., 1998). The standards aspect of the Norms and Standards project led to the development of a national standards document for mental health care in South Africa. In this context, the terms "norms" and "standards" were distinguished. Whereas the norms referred to measures of service resources and service utilisation, standards referred to measures of the quality of mental health care. Although the development of norms certainly has as its goal the improvement of quality, and certain indicators, such as bed occupancy, have been used to assess quality of care, the quality of mental health service provision is not the specific focus of this study.

- Mental health service outcomes, including symptom reduction, patient or user satisfaction and quality of life (WHOQOL Group, 1998). The reasons for this exclusion are discussed in more detail in chapter 2.

- The costing of mental health resources and economic evaluation of current mental health care in South Africa, such as cost-effectiveness analysis, cost-benefit analysis and cost-utilities analysis. It should be noted, however, that it is possible to calculate the cost implications of the norms developed in this study. As will be argued in chapter 5, this is an essential area of further research.

In addition to these exclusions, this study focuses on the service needs of a particular patient population, namely adults (aged 15-64 years) with severe psychiatric conditions (SPC). The study therefore excludes children and adolescents; and older adults. These age groups were excluded because of their specific service needs.

People with SPC are defined as having an "absolute need" (Richman & Barry, 1985) for care: "those who require hospitalisation or would require hospitalisation if adequate community services were not in place" (Flisher et al., 1998). Severe psychiatric conditions include enduring conditions such as schizophrenia, bipolar affective disorder and organic psychoses, as well as acute conditions such as suicide risk, panic disorder and brief psychotic disorder. This patient population requires acute inpatient and in some cases longer term residential care, as well as monitoring, medication and rehabilitation within the community (Sartorius & Harding, 1983)

In a study of severe and persistent mental illness, Ruggeri, et al., (2000) compared two operationalised definitions of severe mental illness (SMI), based on the American National Institute of Mental Health (NIMH) definition (Ruggeri, Leese, Thornicroft, Bisoffi, & Tansella, 2000). The first used three criteria (diagnosis of psychosis; duration of service contact > or = 2 years; Global Assessment of Functioning (GAF) score < or = 50), and the second only the last two criteria. They found that the second definition allowed estimates of SMI prevalence rates that include all forms of mental disorder. It is in this broader sense that SPC is used.

The study therefore does not include services for the following areas, except where there is a co-morbid severe psychiatric condition:

- Alcohol and substance misuse;
- forensic services; and
- learning disabilities or mental handicap.

Although provincial mental health coordinators were asked to provide data on all mental health services in their province, those services which provided care for the substance misuse and learning disabilities were excluded, unless there was a comorbid

severe psychiatric condition. The indicators in this study therefore refer only to services for people with SPC.

The benefits of focusing national projects on specific "target conditions" have been demonstrated both in developed countries, such as Finland (Tuori et al., 1998), and developing countries, such as Tanzania (Kilonzo et al., 1998) and Iran (Mohit, 1998). In Tanzania, following a review of mental health services in 1980, using key informants and case vignettes, a decision was taken to determine the most important target conditions in the community, and train primary care workers in detection and management of these conditions. The identified conditions were acute and chronic psychosis; drug and alcohol abuse; depression; and epilepsy. After a 3 year pilot programme in 2 regions, the estimated numbers of people in need gained access to services, the programme was cost effective, and a dramatic reduction in admissions to local psychiatric units was noted, as a result of effective management of the targeted patients in the community (Kilonzo et al., 1998).

The focus on severe conditions is in keeping with WHO criteria for establishing service priorities for mental health. These include:

- the magnitude of mental health problems,
- importance of the condition,
- severity of the condition,
- susceptibility to management, and
- costs (WHO, 1996b).

This approach is further supported by evidence that those with the most severe conditions tend to require most resources for care, and that severity is significantly associated with increased costs of care (Bonizzato et al., 2000). In a context of scarce mental health resources, the provision of care for those who require most service resources and have the most severe conditions is an important starting point for service development (Jacob, 2001).

The current study focuses only on public sector mental health services, defined as state-funded or state-subsidised services. These include Lifecare facilities: long-term care institutions that are funded by the public sector, and contracted out to private providers. This choice was founded on the assumption that people with severe psychiatric conditions generally receive services in the public sector. For example, in the Western Cape only 4.8% of psychiatric beds are reported to be found in the private sector (Ensink et al., 1997). Similarly in Gauteng it has been reported that private sector coverage for people with SPC is negligible (R. Lazarus, personal communication, June 1998). It is likely that Gauteng and the Western Cape have the highest level of private sector services in the country (M. Zwarenstein, personal communication, April 1998) and therefore that private sector coverage in other provinces is even lower. The findings from Gauteng and the Western Cape are in keeping with international research which shows that patients with chronic or severe psychiatric conditions are more likely to be socio-economically deprived (Rochefort, 1992; Windle, Thompson, Goldman, & Naierman, 1988) or have limited employability as a consequence of their psychiatric disability (Goldman, Gattozzi, & Taube, 1981). They are therefore less likely to be able to afford private sector services than patients with less severe psychiatric conditions. Indicators for severe psychiatric conditions are therefore reported in public sector services only, on the assumption that the public sector covers the vast majority of their mental health needs.

Chapter 4. Results

4.1 Introduction

This chapter presents the results of this study. Data are presented for indicators of mental health resources (inputs) and service utilisation (process) per province, with totals or aggregates for national mental health services. The findings of the model are then reported. This is followed by the proposed norms for resources and service utilisation in South African public sector mental health services. The results of the manual are set out in Appendix F. The implications of the results are discussed in more detail in chapter 5.

4.2 Service indicators

4.2.1 Bed/population ratios

Table 4.1 outlines the bed/population ratios per 100 000 population as reported from the provincial services questionnaire. The total national bed/population ratio was reported to be 48 beds per 100 000 population, with 13 acute beds and 16 medium-long stay beds (35 including Lifecare) per 100 000 population. There are large discrepancies in bed/population ratios between provinces. For acute beds, the ratio varied between 6 and 18, while for medium-long stay beds it varied between 0 and 29 (excluding Lifecare), and 0 and 83 (including Lifecare).

Table 4.1 Bed/population ratios per 100 000 population in South African mental health services

	Population (x1000)	Acute beds*	Ratio	Acute beds**	Ratio	Med./long stay beds	Ratio	Lifecare	Ratio	Total beds*	Ratio	Total beds**	Ratio
Gauteng	7171	1310	18	1292	18	1260	18	4672	65	7242	101	7224	101
N. Province ***	4128	380	9	377	9	669	16	1740	42	2810	68	2807	68
Mpumalanga	2646	154	6	152	6	0	0	0	0	154	6	152	6
North-West	3043	208	7	208	7	268	9	0	0	476	16	476	16
Free State	2470	358	14	355	14	225	9	0	0	583	24	580	23
Northern Cape	746	55	7	55	7	52	7	0	0	107	14	107	14
Eastern Cape	5865	832	14	832	14	1690	29	0	0	2330	40	2330	40
Western Cape	4118	651	16	649	16	751	18	0	0	1402	34	1400	34
KwaZulu-Natal	7672	1029	13	1026	13	1238	16	819	11	3086	40	3083	40
Total ****	**37859**	**4977**	**13**	**4946**	**13**	**6153**	**16**	**7231**	**19**	**18190**	**48**	**18159**	**48**

* 80% bed occupancy of integrated beds in general hospitals (see chapter 3 for explanation)
** 100% bed occupancy of integrated beds in general hospitals (see chapter 3 for explanation)
*** Northern Province figures may include mental handicap or learning disability beds.
**** Total national bed/population ratios are reported, not means for the provinces, because of the uneven weighting of population per province.

4.2.2 Staff/population ratios

The total national staff/population ratio was 19.5 per 100 000 population, with an inter-provincial range of 5.7 – 31.6 (Table 4.2). The Northern Cape had the lowest total staff/population ratio (5.7 per 100 000), followed by Mpumalanga (11.3 per 100 000).

The staff/population ratios per 100 000 population for selected personnel categories (with the inter-provincial ranges in brackets) were as follows: total nursing staff – 15.6 (4.4 – 28.4); occupational therapists - 0.4 (0.1 - 0.8); occupational therapy assistants – 0.5 (0.0 – 1.3); social workers – 0.5 (0.1 – 0.9); community health workers – 0.3 (0.0 – 1.0); psychologists - 0.3 (0 - 0.7); intern psychologists – 0.3 (0.0 - 0.7); psychiatrists - 0.4 (0.1 - 0.8); psychiatric registrars – 0.4 (0.0 – 1.2); medical officers - 0.4 (0.2 – 1.3); pharmacists – 0.2 (0.1 - 1.1); and pharmacy assistants – 0.2 (0.0 – 0.6).

For most staff categories, Gauteng and the Western Cape had relatively favourable staff/population ratios compared to the other provinces. However, the ratio for general nurses for the Northern Province (11.7 per 100 000) was exceptionally high, inflating the staffing figures for that province. It was almost three times as high as that for the Western Cape, which was the province with the next highest general nurse/population ratio (of 4.2 per 100 000). By contrast, qualitative reports from participants in the Northern Province provincial workshop indicated that their staff resources were severely depleted. It therefore seems likely that data for nurses in the Northern Province were reported inaccurately. General nurses may have been reported as full-time psychiatric service providers, even though they devote only a proportion of their time to the treatment of patients with psychiatric conditions.

Table 4.2 Staff/population ratios per 100 000 population in South African mental health services

Province	Population (x1000)	Enrolled nurses	Ratio	Psychiatric nurses	Ratio	General nurses	Ratio	OTs	Ratio	OTAs	Ratio	Social Workers	Ratio	CHWs*	Ratio
Gauteng	7171	578	8.1	732	10.2	90	1.2	49	0.7	94	1.3	48	0.7	8	0.1
Northern Province	4128	290	7.0	398	9.6	483	11.7	11	0.3	55	1.3	22	0.5	5	0.1
Mpumalanga	2646	101	3.8	71	2.7	64	2.4	6	0.2	0	0.0	13	0.5	8	0.3
North-West	3043	78	2.6	115	3.8	72	2.4	5	0.2	7	0.2	27	0.9	29	0.9
Free State	2470	48	1.9	190	7.7	34	1.4	13	0.5	8	0.3	10	0.4	2	0.1
Northern Cape	746	3	0.4	28	3.8	2	0.2	2	0.3	3	0.4	1	0.1	0	0.0
Eastern Cape	5865	308	5.3	350	6.0	53	0.9	5	0.1	7	0.1	16	0.3	57	1.0
Western Cape	4118	296	7.2	318	7.7	173	4.2	32	0.8	13	0.3	30	0.7	0	0.0
KwaZulu-Natal	7672	516	6.7	431	5.6	85	1.1	13	0.2	5	0.1	18	0.2	0	0.0
Total **	**37859**	**2217**	**5.9**	**2634**	**7.0**	**1056**	**2.8**	**136**	**0.4**	**191**	**0.5**	**184**	**0.5**	**109**	**0.3**

* CHW = community health worker

** Total national staff/population ratios are reported, not means for the provinces, because of the uneven weighting of population per province.

Table 4.2 Staff/population ratios per 100 000 population in South African mental health services (cont'd)

	Psycho-logists	Ratio	Intern Psycho-logists	Ratio	Psych-iatrists	Ratio	Regis-trars	Ratio	MOs *	Ratio	Pharma-cists	Ratio	SASO **	Ratio	**Total nurses**	**Ratio**	**Total for all staff**	**Ratio for all staff**
Gauteng	51	0.7	47	0.7	60	0.8	71	1.0	32	0.5	12	0.2	6	0.1	1400	19.5	1878	26.2
N. Province	1	0.0	0	0.0	3	0.1	0	0.0	19	0.5	3	0.1	10	0.2	1171	28.4	1305	31.6
Mpumalanga	1	0.0	0	0.0	5	0.2	1	0.0	22	0.8	6	0.2	0	0.0	237	8.9	298	11.3
North West	2	0.1	3	0.1	3	0.1	0	0.0	38	1.3	34	1.1	20	0.6	265	8.7	432	14.2
Free State	1	0.0	2	0.1	2	0.1	0	0.0	5	0.2	6	0.2	3	0.1	272	11.0	324	13.1
N. Cape	0	0.0	0	0.0	1	0.1	0	0.0	2	0.3	1	0.1	0	0.0	33	4.4	43	5.7
Eastern Cape	10	0.2	10	0.2	10	0.2	2	0.0	18	0.3	5	0.1	9	0.2	711	12.1	859	14.7
Western Cape	25	0.6	21	0.5	31	0.8	49	1.2	16	0.4	8	0.2	5	0.1	787	19.1	1016	24.7
KwaZulu-Natal	30	0.4	22	0.3	21	0.3	22	0.3	18	0.2	10	0.1	22	0.3	1032	13.5	1214	15.8
Total	**122**	**0.3**	**106**	**0.3**	**135**	**0.4**	**144**	**0.4**	**169**	**0.4**	**85**	**0.2**	**75**	**0.2**	**5907**	**15.6**	**7369**	**19.5**

* MO = Medical Officer
** SASO = pharmacy assistant

4.2.3 Staff/bed ratios

The total clinical staff/bed ratio is 0.3 and the total nurse/bed ratio is 0.25 (Table 4.3). The vast majority of psychologists and psychiatrists in inpatient facilities are to be found in Gauteng, the Western Cape and KwaZulu-Natal. However, Gauteng reports the lowest total clinical staff/bed ratio.

*Table 4.3 Staff/bed ratios in South African mental health services**

	Total beds**	Enrolled nurses	Ratio	Psychiatric nurses	Ratio	General nurses	Ratio	OTs	Ratio	OTAs	Ratio	Social Workers	Ratio	CHWs	Ratio
Gauteng	7224	564	0.08	603	0.08	83	0.01	39	0.01	84	0.01	35	0.00	0.00	0.00
N. Province	2807	170	0.06	262	0.09	219	0.08	9	0.00	52	0.02	18	0.01	0.00	0.00
Mpumalanga	152	31	0.20	39	0.26	36	0.23	3	0.02	0	0.00	5	0.03	0.00	0.00
North-West	476	22	0.05	54	0.11	12	0.03	2	0.00	6	0.01	5	0.01	1.00	0.00
Free State	580	48	0.08	168	0.29	21	0.04	13	0.02	8	0.01	10	0.02	2.00	0.00
N. Cape	107	3	0.03	16	0.15	0	0.00	2	0.02	3	0.03	1	0.01	0.00	0.00
E. Cape	2330	295	0.13	267	0.11	47	0.02	3	0.00	7	0.00	12	0.01	25.00	0.01
W. Cape	1400	273	0.19	244	0.17	156	0.11	27	0.02	9	0.01	20	0.01	0.00	0.00
KZN	3083	479	0.16	382	0.12	50	0.02	11	0.00	5	0.00	17	0.01	0.00	0.00
Total ***	**18159**	**1885**	**0.10**	**2035**	**0.11**	**624**	**0.03**	**109**	**0.01**	**173**	**0.01**	**123**	**0.01**	**28**	**0.00**

* All staff in this table were reported as working exclusively in inpatient settings. Unfortunately it was not possible to provide records of staff in separate "acute" and "medium-long stay" categories. A more crude overall figure of staff to total beds is therefore provided.

** At 100% bed occupancy in those integrated acute wards in general hospitals where there were no specified beds, but estimates of bed numbers were made on the basis of admission rates and length of stay (see chapter 3).

*** Total national staff/bed ratios are reported, not means for the provinces, because of the uneven weighting of beds per province.

Table 4.3 Staff/bed ratios in South African mental health services (cont'd)

	Psycho-logists	Ratio	Intern psycho-logists	Ratio	Psy-chia-trists	Ratio	Regis-trars	Ratio	MOs	Ratio	Phar-ma-cists	Ratio	SA-SOs	Ratio	Total Nurses	Ratio	Total for all staff	Ratio for all staff
Gauteng	29	0.00	30	0.00	41	0.01	40	0.01	21	0.00	11	0.00	6	0.00	1250	0.17	1585	0.22
N. Province	1	0.00	0	0.00	2	0.00	0	0.00	5	0.00	2	0.00	2	0.00	651	0.23	741	0.26
Mpumalanga	1	0.00	0	0.00	1	0.01	0	0.00	14	0.09	5	0.03	0	0.00	105	0.69	134	0.89
N. West	0	0.00	1	0.00	0	0.00	0	0.00	9	0.02	6	0.01	12	0.03	88	0.19	131	0.27
Free State	1	0.00	2	0.00	2	0.00	0	0.00	4	0.01	6	0.01	3	0.01	237	0.41	288	0.5
N. Cape	0	0.00	0	0.00	0	0.00	0	0.00	2	0.02	1	0.01	0	0.00	19	0.18	28	0.26
E. Cape	7	0.00	7	0.00	8	0.00	1	0.00	15	0.01	5	0.00	6	0.00	609	0.26	704	0.30
W. Cape	15	0.01	16	0.01	19	0.01	37	0.03	5	0.00	6	0.00	4	0.00	673	0.48	832	0.59
KZN	21	0.01	16	0.01	14	0.00	17	0.01	13	0.00	8	0.00	18	0.01	911	0.30	1051	0.34
Total	**74**	**0.00**	**71**	**0.00**	**89**	**0.00**	**94**	**0.01**	**89**	**0.00**	**50**	**0.00**	**51**	**0.00**	**4544**	**0.25**	**5494**	**0.3**

4.2.4 Staff/patient ratios

The total clinical staff/DPV ratio is 0.6 (provincial range: 0.1-4.0) and the total nurse/DPV ratio is 0.4 (provincial range 0.1—2.4) (Table 4.4). North West province reported the highest staff/DPV and nurse/DPV ratios. The lowest ratios were reported by Northern Cape and Eastern Cape.

As a national mean, the staff/DPV ratio of 0.6 implies that on average every member of ambulatory care staff sees less than two patients per day. This figure refers to all ambulatory care clinical staff, whose activities include not only direct patient contact, but also administration, meetings, travelling, home visits, leave, further training and supervision.

In terms of trends for specific professional groups, noteworthy is the lack of OTs and OTAs rendering a mental health service in ambulatory care.

Table 4.4 Staff/DPV ratios in ambulatory settings in South African mental health services***

	Visits per month	DPV	Enrolled nurses	Ratio	Psychiatric nurses	Ratio	General nurses	Ratio	OTs	Ratio	OTAs	Ratio	Social Workers	Ratio	CHWs	Ratio
Gauteng	29474	1340	14	0.01	129	0.10	7	0.00	10	0.01	10	0.01	13	0.01	8	0.01
N. Province	7091	322	120	0.37	136	0.42	264	0.82	2	0.01	3	0.01	4	0.01	5	0.02
Mpumalanga	6306	287	70	0.24	33	0.11	29	0.10	3	0.01	0	0.00	8	0.03	8	0.03
North-West	6869	312	259	0.83	246	0.79	245	0.78	12	0.04	3	0.01	92	0.29	91	0.29
Free State	3959	180	0	0.00	22	0.12	13	0.07	0	0.00	0	0.00	0	0.00	0	0.00
N. Cape	3386	154	0	0.00	12	0.08	2	0.01	0	0.00	0	0.00	0	0.00	0	0.00
E. Cape	26249	1193	13	0.01	83	0.07	6	0.01	2	0.00	0	0.00	4	0.00	32	0.03
W. Cape	18840	856	23	0.03	74	0.09	17	0.02	5	0.01	4	0.00	10	0.01	0	0.00
KZN	7769	353	37	0.10	49	0.14	35	0.10	2	0.01	0	0.00	1	0.00	0	0.00
Total ***	109943	4997	535.9	0.11	784.65	0.16	616.7	0.12	37	0.01	20	0.00	131	0.03	144	0.03

* DPV = Daily Patient Visits = Number of visits per month ÷ 22 (i.e. the equivalent of the number of patients seen per day).
** All staff in this table were reported as working exclusively in ambulatory care settings.
*** Total national staff/DPV ratios are reported, not means for the provinces, because of the uneven weighting of DPV per province.

Table 4.4 Staff/DPV ratios in ambulatory settings in South African mental health services (cont'd)

	Psycho-logists	Ratio	Intern psy-cholo-gists	Ratio	Psychia-trists	Ratio	Regis-trars	Ratio	MOs	Ratio	Phar-macists	Ratio	SA-SOs	Ratio	Total nurses	Ratio	Total for all staff	Ratio for all staff
Gauteng	23	0.02	18	0.01	20	0.01	31	0.02	11	0.01	1	0.00	0	0.00	149	0.1	298	0.2
N. Province	0	0.00	0	0.00	1	0.00	0	0.00	14	0.04	1	0.00	8	0.02	520	1.6	552	1.7
Mpumalanga	1	0.00	0	0.00	4	0.01	1	0.00	7	0.03	1	0.00	0	0.00	132	0.5	167	0.6
N. West	9	0.03	8	0.03	11	0.04	1	0.00	113	0.36	115	0.37	25	0.08	750	2.4	1261	4.0
Free State	0	0.00	0	0.00	0	0.00	0	0.00	1	0.01	0	0.00	0	0.00	35	0.2	42	0.2
N. Cape	0	0.00	0	0.00	1	0.01	0	0.00	0	0.00	0	0.00	0	0.00	14	0.1	14	0.1
E. Cape	4	0.00	3	0.00	2	0.00	1	0.00	3	0.00	0	0.00	3	0.00	102	0.1	170	0.1
W. Cape	10	0.01	5	0.01	12	0.01	12	0.01	11	0.01	2	0.00	1	0.00	114	0.1	195	0.2
KZN	10	0.03	7	0.02	7	0.02	5	0.01	5	0.01	3	0.01	4	0.01	121	0.3	174	0.5
Total	**55**	**0.01**	**40**	**0.01**	**57**	**0.01**	**50**	**0.01**	**165**	**0.03**	**122**	**0.02**	**41**	**0.01**	**1937**	**0.4**	**2873**	**0.6**

4.2.5 Community/hospital ratios

4.2.5.1 Staff

The results indicate that on average, 25% of psychiatric public sector staff are located in community settings in South Africa (Table 4.5). If alternative definitions are used, this figure is reduced to 17%. There is wide variability between provinces. In some provinces, such as North West, as many as 70% of staff are located in community settings. In most provinces, however, the majority of staff remain in hospital settings, with the Eastern Cape and KwaZulu-Natal reporting that as little as 3% and 5% of staff are located in community settings, respectively.

In certain provinces, such as the Eastern Cape and KwaZulu-Natal, there is a large discrepancy between the ratio for Definition 1 and that for Definition 2. In the Eastern Cape, for example, the ratio drops from 18% to 3% when staff from hospital OPDs are defined as rendering a hospital rather than community-based service.

Table 4.5 Community/hospital ratios for staff in South African mental health services*

Province	Number of staff		Ratio 1 (%)**	Number of staff		Ratio 2 (%)**
	Community: Hosp. OPD plus Clinics plus CHCs	**Hospital:** Inpatients only		**Community:** Clinics plus CHCs	**Hospital:** Inpatients plus Hospital OPDs	
Gauteng	293	1585	16	207	1671	11
N. Province	564	741	43	457	848	35
Mpumalanga	164	134	55	129	169	43
North West	301	131	70	241	191	56
Free State	36	288	11	28	296	9
Northern Cape	14	28	34	13	29	31
Eastern Cape	155	704	18	22	837	3
Western Cape	185	832	18	79	938	8
KwaZulu-Natal	163	1051	13	66	1148	5
Total ***	**1876**	**5494**	**25**	**1242**	**6127**	**17**

* Ratios are calculated as community ÷ (community + hospital). and expressed as a percentage.

** Ratio 1 is based on Definition 1 of community and hospital services, and Ratio 2 is based on Definition 2. See chapter 3 for definitions and discussions of Ratio 1 and Ratio 2.

*** Total national community/hospital ratios are reported. not means for the provinces, because of the uneven weighting of the denominator per province.

4.2.5.2 Patients

The results indicate that on average, 66% of patient contacts with mental health services occur through ambulatory care services in South Africa (Table 4.6). This means that approximately one third (34%) of patient contact with services takes the form of hospital admissions. In some provinces, such as KwaZulu-Natal (44%) there appear to be more hospital admissions than outpatient attendances per year. In remote rural provinces, such as the Northern Cape, the vast majority (93%) of patient service contacts occur through ambulatory care services.

Apart from the outlying figures for Northern Cape (93%) and KwaZulu-Natal (44%), most provinces fall within a relatively limited range of 60-78%. However, there is considerable variability between provinces for each numerator and denominator. For example, the annual ambulatory attendance rate ranges from 101 per 100 000 in KwaZulu-Natal to 458 in the Western Cape, and the annual hospital admission rate per 100 000 from 33 in the Northern Cape to 300 in the Western Cape.

Table 4.6 *Community/hospital ratios for patient service utilization in South African mental health services*

Province	**Community** Annual ambulatory care patient attendances per 100 000 population	**Hospital** Annual hospital admission rate per 100 000 population	**Ratio* (%)**
Gauteng	411	227	64
N. Province	172	100	63
Mpumalanga	238	87	73
North-West	226	87	72
Free State	160	70	70
N. Cape	454	33	93
E. Cape	448	123	78
W. Cape	458	300	60
KZN	101	131	44
Total	**296**	**150**	**66**

* Ratio is defined as Community ÷ (Community + Hospital), expressed as a percentage

** Total national community/hospital ratios are reported, not means for the provinces, because of the uneven weighting of the denominator per province.

4.2.6 Bed occupancy rates

The national total bed occupancy rate reported from the provincial services questionnaire is 83% (Table 4.7). This ranged from 63% in the Northern Province, to 109% in Mpumalanga.

Table 4.7 Bed occupancy rates in South African mental health services

	Available beds* (I)	Available beds** (II)	Occupied beds	Bed occupancy rate (%) (I)	(II)
Gauteng	7224	7242	6542	91	90
N. Province	2807	2810	1773	63	63
Mpumalanga	152	154	165	109	107
North-West	476	476	373	78	78
Free State	580	583	577	99	99
N. Cape	107	107	70	65	65
E. Cape	2330	2330	1701	73	73
W. Cape	1400	1402	1287	92	92
KZN	3083	3086	2648	86	86
Total ***	**18159**	**18190**	**15137**	**83**	**83**

* Bed numbers calculated at 100% bed occupancy in general hospitals (see chapter 3 for details).

** Bed numbers calculated at 80% bed occupancy in general hospitals (see chapter 3 for details).

*** Total national bed occupancy ratios are reported, not means for the provinces, because of the uneven weighting of available beds per province.

4.2.7 Admission rates

The annual admission rate for South African mental health services in 1997 was 150 per 100 000 (Table 4.8). The admission rates range from a low of 33 in the Northern Cape to a high of 300 per 100 000 in the Western Cape.

Table 4.8 Annual admission rates per 100 000 population in South African mental health services

	Population (× 1000)	Number of admissions per year	Rate of admission per 100 000 population
Gauteng	7171	16265	227
N. Province	4128	4121	100
Mpumalanga	2646	2306	87
North-West	3043	2656	87
Free State	2470	1723	70
Northern Cape	746	245	33
Eastern Cape	5865	7242	123
Western Cape	4118	12353	300
KwaZulu-Natal	7672	10037	131
Total *	**37859**	**56948**	**150**

* Total national admission rates are reported, not means for the provinces, because of the uneven weighting of population per province.

4.2.8 Length of admission (Average Length of Stay: ALOS)

The average length of stay for psychiatric patients is 219 days in psychiatric hospitals, 11 days in general hospitals and 7 days in district hospitals (Table 4.9). There was considerable variability in ALOS in psychiatric hospitals across the provinces, ranging from 60 days in North West to 3650 days in the Northern Province.

Table 4.9 Average length of stay in inpatient care in South African mental health services

Province	Average length of stay (days)*		
	Psychiatric Hospitals	General Hospitals	District Hospitals
Gauteng	1752	15	n/a
N. Province	3650	10	21
Mpumalanga	n/a	n/a	7
North-West	60	13	14
Free State	213	7	5
N. Cape	567	2	2
E. Cape	66	28	9
W. Cape	69	8	n/a
KZN	226	14	7
Median	**219**	**11**	7

N/a = Not available

* As noted in chapter 3, the average was calculated using the median length of stay, although it was not clear whether the questionnaire was completed according to these specifications.

4.2.9 Readmission rates

As stated in chapter 3, because of limited provincial information systems, it was not possible to gather information on readmission rates on a routine basis. The provincial services questionnaire was therefore not able to yield readmission rates. In the Northern Cape, however, readmission rates are kept, and the following figures were reported for 1995-1997 at West End hospital (Table 4.10).

Table 4.10 Readmissions within a year at West End hospital, Northern Cape

	1995	**1996**	**1997**	**Total**	**Mean**	**Readmission rate (%)**
Discharges	185	199	194	656	192.7	-
Readmissions	63	68	60	218	63.7	33%

4.2.10 Default rates

The total national default rate was reported as 11% (range: 6-21%) (Table 4.11).

Table 4.11 Default rates in ambulatory care in South African mental health services

	Total outpatient Attendances per month	Total number of patients who fail to keep an appoint-ment per month	Default rate (%)
Gauteng	29474	2031	6
N. Province	4824	1267	21
Mpumalanga	6306	1045	14
North-West	7337	1851	20
Free State	3959	646	14
Northern Cape	3386	876	21
Eastern Cape	26249	2054	7
Western Cape	18840	2424	11
KwaZulu-Natal	7769	1472	16
Total *	**108144**	**13665**	**11**

* Total national default rates are reported, not means for the provinces, because of the uneven weighting of outpatient attendances per province.

4.2.11 Summary: service indicators

When interpreting the service indicators reported in this study, it is important not to interpret specific indicators in isolation from others. Table 4.12 provides a summary of the national mental health service indicators, with provincial ranges.

Table 4.12 Summary: service indicators

Indicator	Definition	National total* (provincial range)
Bed/population ratio	(Beds ÷ total population) × 100 000	Acute: 13 (6-18) Med-long (excluding Lifecare): 16 (0-29) Med-long (including Lifecare): 35 (0-83)
Staff/population ratio (clinical staff only)	(Staff ÷ total population) × 100 000	Total nurses: 15.6 (4.4-28.4) Total staff: 19.5 (5.7-31.5)
Staff/bed ratio (clinical staff only)	Staff ÷ beds (inpatient staff only)	Total nurses: 0.25 (0.17-0.69) Total staff: 0.3 (0.22-0.89)
Staff/DPV ratio (clinical staff only)	Staff ÷ DPV (Daily Patient Visits) (ambulatory care staff only)	Total nurses: 0.4 (0.1-2.4) Total staff: 0.6 (0.1-4.0)
Community/ Hospital ratio	1. (Community staff ÷ (hospital + comm staff)) × 100 2. (Attendance rate ÷ (admission rate + attendance rate)) × 100	1. Ratio 1: 25% (11-70%) Ratio 2: 17% (3-56%) 2. 66% (44-93%)
Bed occupancy	(Inpatient days ÷ Available bed days) × 100	83% (63-109%)
Admission rates	Annual admissions per 100 000 population	150 (33-300)
Length of stay	Median length of admission (days)	Psychiatric hospitals: 219 (60-3650) General hospitals: 11 (1.5-28) District hospitals: 7 (1.5-21)
Default rate	(Defaulters ÷ Appointments) × 100	11% (6-21%)

* All national figures are reported as the national total, with the exception of Length of stay, which is reported as the median.

4.3 Model

4.3.1 Ambulatory care services

Using the formulae, prevalence rates and population figures described in chapter 3, the following numbers of annual visits were calculated:

No. of visits per year = 0.0300428 × 63,650 × 0.3 × 12 = 6,884 (30% coverage)
No. of visits per year = 0.0300428 × 63,650 × 1.0 × 12 = 22,947 (100% coverage)

From the annual visits, a total of 26 DPV (30%) and 87 DPV (100%) can be calculated, assuming that there are 264 working days per year.

4.3.2 Inpatient services

It was calculated that 28 acute and 10 medium-long stay inpatient beds per 100 000 population are needed (Table 4.13).

Table 4.13 Beds needed for acute psychiatric care per 100 000 population

Facility	Disorder	Severe cases (n)	Needing hospitalisation per year (%)	ALOS[1] (days)	Rotation factor[2]	Beds (n)
Acute	Non-affective psychosis	318	50	21	1.15	11
	Bipolar affective disorder	828	30	14	1.15	11
	Major depression	1 311	5	30	1.15	6
	Anxiety disorder	547	5	2	1.15	0
	Sub-total	3 004	-	17	-	28
Med-long	Non-affective psychosis	318	5	180	1.05	8
	Bipolar affective disorder	828	0.5	180	1.05	2
	Sub-total	-	-	-	-	10
Total	-	-	-	-	-	**38**

1 Average length of stay

2 The rotation factor for medium-long stay care is taken to be lower at 5% (1.05), reflecting a higher bed occupancy rate for these facilities.

Combining estimated beds for acute and medium-long stay facilities gives a total of 38 beds per 100 000 population for patients with severe psychiatric conditions. (Thirty per cent coverage of these bed numbers yields figures of 3 medium-long stay beds, 8.4 acute beds and a total of 11.4 beds per 100 000 population).

4.3.3 Human resources

For ambulatory care, the numbers of FTE staff required are as follows:

$$\text{FTE} = (26 \times 264) \div (11 \times 225) = 2.78 \text{ (30\% coverage)}$$

$$\text{FTE} = (87 \times 264) \div (11 \times 225) = 9.27 \text{ (100\% coverage)}$$

With the additional staff to cover home visits and other outreach activities, this gives a total of approximately 12 ambulatory care staff at 100% coverage and 4 at 30% coverage to meet the ambulatory care needs of the 3004 people with severe psychiatric conditions. The breakdown of this total according to professional categories (Table 4.14) is guided by the recommendations of the WHO model and the spread of professional disciplines in existing services in South Africa from the service indicators.

Table 4.14 Total human resources needed for a district/region of 100 000 people

Type of professional	Inpatient		Ambulatory care	Managerial	Total	WHO Total*
	Acute	Med-long				
Nurses	14	3.1	7	1	25.1	24
OT	-	0.1	0.5	-	0.6	2
OTA	-	0.4	1.5	-	1.9	-
Social workers	1	0.2	1	-	2.2	3
Clinical Psychologists	-	0.2	1	-	1.2	2
Psychiatrists	1	0.1	0.25	0.2	1.55	4
Registrars (residents)/MO	1	0.2	0.75	-	1.95	-
Education/info	-	-	-	0.5	0.5	-
Quality assurance	-	-	-	0.2	0.2	-
Total	**17**	**4.3**	**12**	**1.9**	**35.2**	**36**

* Figures as calculated from WHO model (WHO, 1996b). The WHO publication reports slightly lower figures, but these include arithmetical errors that were corrected to produce the figures in this table.

In calculating the human resource requirements for the 28 acute beds that are necessary for the hypothetical population (Table 4.13), adaptations were made to the WHO recommendations for a 30-bed acute unit with around ten 17-day admissions per week (Table 4.14). (30% coverage of the total acute FTE staff is 5.1).

For the 10 medium-long stay beds, a total of 4.3 FTE clinical staff would be needed to serve 100 000 people, based on a nurse/bed ratio of 0.3 (30% coverage of the total medium-long FTE staff is 1.3). See Table 4.14 for a breakdown of staff disciplines.

The WHO model's recommendations for managerial staff for a population of 500 000 can be adapted to a population of 100 000 as follows: 0.2 chief regional mental health professional (psychiatrist, psychologist or psychiatric nurse); 1.0 nurse; 0.2 quality assurance professional (of any relevant profession); and 0.5 coordinator of mental health information (of any relevant profession). In addition to managerial and administrative functions, the role of a quality assurance professional and information coordinator would be to assist in the planning and monitoring of services. Because a region/district of 100 000 is too small to support a full-time professional in this role, a fraction of a FTE worker is proposed. It would be envisaged that coordinators of information and quality assurance would take responsibility for several regions or districts.

4.4 Norms

Prior to reporting norms, the recommendations of provincial coordinators are provided for each norm. These are included in this section because they constitute norms recommendations and are a result of this study. Provincial coordinators made these recommendations based on the indicators that had been generated from the provincial services questionnaire and their own knowledge of provincial services. They were asked to recommend norms for their own province. At the time of making their recommendations they had no knowledge of the proposed norms, which were only developed after the recommendations of the provincial coordinators had been received.

It should be stressed, however, that the final norms proposals in this thesis are made on the basis of a variety of information sources, including service indicators (providing measures of existing service resources and utilisation), the model (providing an estimation of service need), the wider provincial consultation process, existing policy and the recommendations of provincial coordinators.

4.4.1 Bed/population norms

4.4.1.1 Recommendations of provincial coordinators

The following recommendations for bed/population ratios per 100 000 were made by provincial mental health coordinators (Table 4.15). The coordinators were asked to make recommendations on levels of care for their own provinces. Several provinces did not return any recommendations.

*Table 4.15 Provincial mental health coordinators' recommendations for bed/population norms per 100 000 population**

Province	Type of facility	Baseline	Target
Gauteng	Acute	18	18
	Medium (ALOS: 180 days)	17	12
	Chronic	45	10
Mpumalanga	Acute	6	6
	Chronic	11	11
North-West	Acute	7	8
	Medium-long	8	9
Free State	Acute	25	25
	Chronic	11	15
Western Cape	Acute	25	35
	Medium-long	40	45

* If provincial coordinators provided only one norm level, the norm has been listed as both baseline and target.

4.4.1.2 Proposed bed/population norms

Table 4.16 summarises the results from the existing provincial ratios and the model, and indicates the proposals for bed/population norms per 100 000 population for mental health services in South Africa.

4.4.1.2.1 Baseline

For the reasons outlined in chapter 3, the proposed baseline norm for acute beds is derived directly from the national acute bed/population ratio. As stated in the introduction, the goal of the baseline is the development of national equity, in a context of maldistribution of service resources.

For medium-long stay beds, the proposed baseline norm has been set at 30% provision as defined by the model. Constraints of affordability underlie this proposal. The national medium-long stay bed/population ratio is considerably higher than what is affordable by less well-resourced provinces. It would, for example, be unrealistic to expect

Mpumalanga to move from no medium-long stay beds to the national mean of 35 per 100 000 (or even 16 per 100 000, excluding Lifecare).

4.4.1.2.2 Target

The target levels for acute and medium-long stay beds are based directly on the ratios produced by the *model* (i.e., at 100% service coverage), and are therefore based on estimations of need.

The national mean bed/population ratio per 100 000 population divided by the proposed target norm is less than 1 for acute beds and more than 1 for medium-long stay beds (Table 4.16). This indicates that the relative number of national acute beds should increase if the target norm is to be achieved whereas the relative number of national medium-long term beds should decrease if the target is to be achieved. This is consistent with current policy of increasing acute care facilities, decreasing medium-long stay beds, and developing community-based residential care facilities. These policy developments are framed by the historical legacy of hospital-based custodial care and are given further support by evidence of the cost-effectiveness of community-based care.

Table 4.16 Summary of results and proposals of bed/population norms per 100 000 population for South African mental health services

	National Mean	Model* (30% provision)	Proposed Norms		National Mean ÷ Baseline	National Mean ÷ Target
			Baseline	Target		
Acute Beds	13	28 (8.4)	**13**	**28**	1	0.46
Medium / Long Stay Hospital Beds	35	10 (3)	**3**	**10**	11.7	3.5
Community Based Residential Beds	-	-	***3***	***20***	-	-
Total	**48**	**38 (10.8)**	**19**	**58**	**2.5**	**0.83**

* Recommendations from the model are taken at 100% coverage – see chapter 3 for explanation.
(30% provision is provided in parentheses)

4.4.1.2.3 Community based residential care beds

In addition to acute and medium-long stay beds, community-based residential care beds were added to the norms proposals (see Table 4.16). This was done for several reasons:

- The importance of facilities of this nature was mentioned repeatedly in the literature, and seen as an essential adjunct to the reduction of long stay beds (Knapp et al., 1994; Knapp et al., 1998).

- Upon the presentation of the bed/population norms at the national meeting of provincial mental health coordinators on 23 July 1998, the absence of community residential bed norms was criticised, and recommendations for community residential bed norms were suggested, in keeping with those made in Table 4.16.

- The model does not account for facilities for the care of chronic psychiatric patients that fall outside of hospital services. Therefore the actual need for residential care beds is underestimated if the model alone was used.

- Given the legacy of custodial care, there are currently a large number of patients in long-term institutions, with the consequent adverse effects of extended institutionalisation. Without the development of community-based services for these patients, and a better understanding of their needs, closure of these beds would arguably be damaging to these patients (Porteus et al., 1998). Without adequate planning, correctional services, social welfare services and families could carry a greater social and economic cost.

However, the task of proposing community residential care bed/population norms was difficult. There is an absence of

international norms for community residential bed/population ratios and there is little data available from the provinces. Only Gauteng completed the section of the provincial services questionnaire that requested community-based residential bed numbers.

To address these shortcomings, baseline norms were proposed at the same level as for medium-long stay beds, in order to provide an attainable goal for provinces with minimal or no community-based residential care. At target level, drawing on the international literature, it was clear that in countries such as Italy (Fioritti et al., 1997) and the UK (Lelliot et al., 1996), where community-based care has been developed successfully, community-based residential care beds are at least double the number of medium-long stay beds in hospitals. A target community-based residential care figure was therefore offered at double that of medium-long stay hospital beds, highlighting the need for community-based care.

4.4.2 Staff/population norms

4.4.2.1 Recommendations of provincial coordinators

The recommendations obtained from the provincial coordinators are provided in Table 4.17. With the recommendations from Gauteng and Mpumalanga, provincial coordinators added the comment that there was a need to develop psychosocial rehabilitation staffing in their provinces in order to further enhance community-based rehabilitation services.

Table 4.17 Provincial mental health coordinators' recommendations for staff/population norms per 100 000 population

Province	Staff category	Baseline	Target
Gauteng	Total clinical staff	35	45**
Mpumalanga	Psychiatric nurses	3.8	-
	General nurses	5.7	-
	OTs	1.4	-
	Psychologists	0.1	-
	Social Workers	0.6	-
North-West	Psychiatric nurses	5	10
	General nurses	2	5
	OTs	2	5
	OTAs	1	3
	Social Workers	1	3
	CHWs	1	2
	Psychologists	2	5
	Psychiatrists	0.5	1
	MOs	1	2
	Pharmacists	1	1
Free State	Nurses (Community services)	40***	-
	Nurses (Acute inpatients)	22.5	-
	Nurses (Chronic beds)	6	8.5

* - = no recommendation received

** This recommendation was based on increased numbers of social workers, occupational therapists and psychologists

*** Recommended to render a fully integrated comprehensive health service, including psychiatry, for patients with severe psychiatric conditions

4.4.2.2 Proposed staff/population norms

4.4.2.2.1 Baseline

The proposals for staff/population norms are set out in Table 4.18. The baseline staff/population norms were calculated using the national staff/population ratio as a guide. In certain instances marginal increases of the national ratio for certain staff categories were introduced, for psychiatric nurses (by 1 per 100 000), for OTAs (by 0.4), for social workers (by 0.2) and for CHWs (by 0.4). This was in keeping with recommendations of provincial coordinators, with particular emphasis on the development of psychosocial rehabilitation staff. It was also in keeping with current policy that emphasises the development of community-based mental health care. This is consistent with patterns observed in the international literature, while limited by affordability constraints. No recommendations were made for baseline norms for educational and quality assurance officers because there were no provincial data for these positions. These were, however, generated by the model, and target norms were recommended for these positions, for future service development.

As argued in relation to the bed/population norms, the baseline staff levels are developed with the goal of establishing national equity, and should not be used as a basis for reducing mental health staff in those provinces that have staff numbers above these levels. As the international literature and the modelling process has shown, no mental health services in South Africa have adequate staffing in terms of the mental health needs of people with severe psychiatric conditions.

4.4.2.2.2 Target

The target ratios are drawn directly from the model. The model did not generate figures separately for psychiatric nurses but provided a figure for total nurses that includes psychiatric and general nurses. The proposed norm for psychiatric nurses is therefore an estimation, based on the relative distribution of psychiatric and general nurses in existing

staff ratios (of approximately 50%). The model also did not generate recommendations for CHWs, intern psychologists and pharmacists, with the result that no target norms were proposed for these professions.

Table 4.18 Proposed staff/population norms for South African mental health services

Staff category	Baseline	Target
Total nurses	16	25.1
Psychiatric nurses*	(8)	(12.5)
Occupational Therapists	0.4	0.6
Occupational Therapy Assistants**	0.9	1.9
Social Workers	0.7	2.2
Community Health Workers	0.7	Not stated
Psychologists	0.3	1.2
Intern Psychologists	0.3	Not stated
Psychiatrists	0.4	1.5
Psychiatric registrars	0.4	2
Medical Officers (MOs)	0.4	Not stated
Pharmacists	0.2	Not stated
Education/information officer	Not stated	0.5
Quality assurance officer	Not stated	0.2
Total clinical staff	**20.7**	**35.2**

* The figure for psychiatric nurses is included in the figure for "total nurses"

** Including community rehabilitation workers, depending on provincial staff/categories

4.4.3 Staff/bed norms

4.4.3.1 Recommendations of provincial coordinators

On the basis of the service indicators, the following recommendations for staff/bed norms were received from provincial mental health coordinators (Table 4.19). Comments attached to the recommendations from Gauteng were that increases in staff/bed norms were an attempt to take account of likely reductions in bed numbers. This trend had been noted to have occurred in the deinstitutionalisation programme in the Free State and elsewhere (see chapter 2).

Table 4.19 Provincial mental health coordinators' recommendations for staff/bed norms

Province	Staff category	Baseline	Target
Gauteng	Total clinical staff	0.4	0.6
Free State	Nurses (Acute inpatients)	0.9	0.9
	Principal and Senior Specialists	0.002	0.002
	Registrars/MOs: Acute	0.03	0.03
	Registrars/MOs: Forensic	0.01	0.01
	Registrars/MOs: Long term	0.01	0.01
	Registrars/MOs: Observations	0.03	0.03
	Psychologists: Acute	0.02	0.02
	Psychologists: Observations	0.03	0.03
Western Cape	Nurses	0.5	0.5
	Psychiatrists	0.01	0.01
	Registrars: Acute	0.05	0.05
	Registrars: Chronic	0.02	0.02
	Registrars: Total	0.03	0.03
	Total acute staff (including support staff)	1.3	1.3
	Total chronic staff (including support staff)	0.8	0.8

4.4.3.2 Proposed staff/bed norms

4.4.3.2.1 Baseline

The proposed staff/bed norms for mental health services in South Africa are presented in Table 4.20. In keeping with the methodology

set out in chapter 3, the baseline norms draw on the national ratios, with increases informed by recommendations of the provincial coordinators, and qualitative observations from participants in the provincial workshops that existing levels are unacceptable. These included increases of 0.01 staff member per bed for OTAs, psychologists, psychiatrists and medical officers as well as an increase of 0.001 for pharmacists. Unfortunately a breakdown according to acute and medium-long stay facilities was not possible from the provincial data, and an estimation was considered to be inappropriate. At baseline level, a total staff/bed norm is therefore provided, without specifications according to acute and medium-long stay facilities.

4.4.3.2.2 Target

Target norms are informed by the model, while taking into account provincial coordinators' recommendations and evidence from the international literature that levels of staffing in inpatient facilities in South Africa are unacceptably low. Details of staff/bed ratios according to acute and medium-long stay facilities are included for three reasons. Firstly, there is a need to distinguish acute and medium-long stay care, according to the particular care needs of patients; secondly, the distinction was recommended by some provincial mental health coordinators; and thirdly, it allows for more specific future planning.

In order to facilitate comparison with baseline norms and provincial ratios, a weighted mean for acute and medium-long stay staff/bed norms has been calculated. It needs to be stressed that the substance of the target proposals should be regarded as the breakdown of acute and medium-long stay facilities. The weighted mean is only provided for the purpose of comparison with the baseline norm and with provincial ratios.

The model does not generate separate recommendations for "psychiatric nurses". The proposed norm for psychiatric nurses is

therefore an estimation based on the relative distribution of psychiatric and general nurses in existing staff ratios (i.e., 0.12 ÷ 0.25 = 0.48). The total nurse/bed ratio was generated from the model.

Table 4.20 Proposed staff/bed norms for South African mental health services

Staff category	Baseline	Target		
	Total	Acute	Med-Long	Weighted mean**
Total nurses (including psych nurses)	0.25	0.5	0.3	0.45
Psychiatric nurses	0.12	0.24	0.14	0.21
Occupational Therapists	0.01	-	0.01	0.01
Occupational Therapy Assistants	0.02	-	0.04	0.04
Social Workers	0.01	0.04	0.02	0.03
Psychologists	0.01	-	0.02	0.02
Psychiatrists	0.01	0.04	0.01	0.03
Psychiatric registrars	0.01	0.02	0.01	0.02
Medical Officers (MOs)	0.01	0.02	0.01	0.02
Pharmacists	0.001	Not stated	Not stated	0.01
Total (clinical staff)	**0.36**	**0.60**	**0.43**	**0.56**

* Includes community rehabilitation workers

** The mean is weighted according to the distribution of beds (assuming 28 acute and 10 medium-long stay beds per 100 000 population). Formula: weighted mean = ((28/(28+10)) × acute ratio) + ((10/(28+10)) × med-long ratio)

4.4.4 Staff/patient norms

4.4.4.1 Recommendations of provincial coordinators

The provincial mental health coordinators' recommendations for staff/patient norms in ambulatory care settings are presented in Table 4.21. Norms were not specified according to daily patient visits, but were reported as stated in the table. In some cases time frames were not provided.

Table 4.21 Provincial mental health coordinators' recommendations for staff/patient norms in ambulatory care settings

Province	Staff category	Baseline	Target
Gauteng	Staff/patient visits per month (total clinical staff in ambulatory care)	0.05	0.1
Free State	Nurses (time frame not stated)	1:60 visits (0.02)	1:60 visits (0.02)

4.4.4.2 Proposed staff/patient norms

4.4.4.2.1 Baseline

The proposed staff/DPV norms for ambulatory care in South African mental health services are presented in Table 4.22. As before, the baseline staff/DPV ratios are based on the national staff/DPV ratios. However, in this instance, existing staff/DPV ratios provided by North West and Northern Province were excluded from consideration for norms. This was because observations of the data for these provinces (with staff/DPV ratios of 1.7 (North West) and 4.0 (Northern Province)) revealed them to be inconsistent with qualitative reports of these services during the provincial visits, and inconsistent with data received from other provinces. These inaccuracies are discussed in more detail in chapter 5. Figures based on the mean of the remaining 7 provinces have been used as a basis for calculating the baseline norm for each staff category.

Slight increases from the existing ratios have been proposed for OTs (by 0.005), OTAs (by 0.009), Social Workers (by 0.03) and CHWs (by 0.01). These increases were based on suggestions from provincial coordinators that there was a need to increase the number of psychosocial rehabilitation staff for community-based mental health care, as well as qualitative feedback regarding staff shortages during the provincial workshops.

4.4.4.2.2 Target

The figures for the target staff/DPV norms were drawn directly from the model's recommendations for staff for ambulatory care. The target proposals use the model's proposed 12 ambulatory care staff per 100 000 population and divide this by the existing DPV reported by the provincial services questionnaire (national mean of 13 DPV per 100 000 population). The same DPV figure was used for the target proposals as for the baseline, to enable comparison of the target staff/DPV with the baseline staff/DPV. It was thought that this was necessary because staffing is the primary focus of this norm, and therefore a constant basis of comparison in the number of patients (the denominator) was needed.

Useful is a comparison with the model's 30% attendance rates of 26 DPV per 100 000 population (26 DPV = 6874 annual visits ÷ 264 days). From the model's proposals of 12 total ambulatory care staff, a staff/DPV ratio of 0.46 is recommended. This lies midway between the proposed baseline and target norms, and gives some indication of the way in which increased service utilisation by patients affects the staff/DPV ratio.

In addition, as with staff/bed norms, the model does not generate separate recommendations for "psychiatric nurses". The proposed norm for psychiatric nurses is therefore an estimation based on the relative distribution of psychiatric and general nurses in existing staff

ratios (i.e., 0.2 ÷ 0.1 = 2 to 1). The total staff/DPV ratio for nurses at target level is taken from the model.

Table 4.22 Proposed staff/DPV norms for ambulatory care in South African mental health services

Staff category	Baseline	Target
Total nurses	0.2	0.54
Psychiatric nurses	0.1	0.27
Occupational Therapists	0.01	0.04
Occupational Therapy Assistants	0.01	0.11
Social Workers	0.01	0.08
Community Health Workers*	0.02	**
Psychologists	0.01	0.08
Intern Psychologists	0.01	**
Psychiatrists	0.01	0.02
Psychiatric registrars	0.01	0.03
Medical Officers (MOs)	0.02	0.03
Pharmacists	0.01	**
Total	**0.32**	**0.93**

* Includes community rehabilitation workers.

** The model did not generate staff/DPV ratios for community health workers, intern psychologists or pharmacists. There is therefore no target norm for these professions.

4.4.5 Community/hospital norms

4.4.5.1 Recommendations of provincial coordinators

There is not a great deal of variation between the provinces in the community/hospital norm recommendations made by the mental health coordinators for staff (Table 4.23) and patient service utilization (Table 4.24). For community/hospital ratios for staff, recommendations were between 20% and 30% at baseline and 40% and 50% at target level. For patient service utilisation, recommendations ranged from 75% to 86% at baseline level and 80% and 86% at target level.

Table 4.23 Provincial mental health coordinators' recommendations for community/hospital norms for staff *

Province	Baseline (%)	Target (%)
Gauteng	20-25	40-50
Free State	25	-
Western Cape	30	-

* "-" = no recommendations received. Recommendations were the same for Ratio 1 and Ratio 2 as defined above.

*Table 4.24 Provincial mental health coordinators' recommendations for community/hospital norms for patients**

Province	Baseline (%)	Target (%)
Gauteng	75	85
Free State	-	80
Western Cape	86	86

* "-" = no recommendations received.

4.4.5.2 Proposed community/hospital norms

4.4.5.2.1 Staff

The proposed norms, which were arrived at using the principles set out in chapter 3, are provided in Table 4.25. Because of the differing patterns of community/hospital staff distribution noted in the existing provincial ratios, two baseline norms were developed for community/hospital ratios for staff: (a) one for provinces with high community/hospital ratios (Northern Province, Mpumalanga and North West) which need to develop staff in hospital services; and (b) the other for provinces with low community/hospital ratios which need to develop staff in community services (Gauteng, Free State, Northern Cape, Eastern Cape, Western Cape and KwaZulu-Natal).

The target norm was framed around the percentage of ambulatory staff calculated using estimations of service need in the model, at 34%. It was further reinforced by the proposals of the provincial mental health coordinators (see Table 4.23), and adapted according to the two definitions of community and hospital services devised during the provincial visits.

Table 4.25 *Proposed community/hospital norms for staff in South African mental health services*

	Baseline (low community)	**Target**	**Baseline (high community)**
Ratio 1	25%	40%	55%
Ratio 2	15%	30%	45%

4.4.5.2.2 Patients

In keeping with the principles outlined in chapter 3, a proposed baseline community/hospital norm for patient service utilization was produced by drawing directly on the national community/hospital

ratios. **The proposed baseline community/hospital norm for patients is: 66%.** This proposed norm is lower than the recommendations of the provincial mental health coordinators.

The model is able to generate community/hospital ratios for patients. At 100% coverage of estimated prevalence of severe psychiatric conditions, this ratio is a very high 98% (see Model spreadsheet, Appendix E). It was felt that this was unrealistic as a target, particularly in view of the present low rates of ambulatory care attendance in South African mental health services. Nevertheless, in making a decision about a target norm, it was assumed that there would be an increased level of patient utilisation of community services as a result of factors such as:

- increased detection of patients in community services;
- improved information systems which report patients' community service utilisation;
- decreased long term custodial care; and
- reduced numbers of long stay beds.

Taking these factors into account, **the proposed target community/hospital norm for patient service utilization is: 92%.** This is marginally higher than the recommendations of the provincial coordinators.

4.4.6 Bed occupancy norms

4.4.6.1 Recommendations of provincial coordinators

The recommendations of provincial coordinators are provided in Table 4.26.

Table 4.26 Provincial mental health coordinators' recommendations for bed occupancy norms

Province	Facility	Baseline (%)	Target (%)
Gauteng		85	80
Free State	Acute	70	85
	Chronic	90	100
Western Cape		85	85

4.4.6.2 Proposed bed occupancy norms

In keeping with the principles of norms development outlined in chapter 3, baseline levels for acute and medium-long stay bed occupancy rates are drawn from the national bed occupancy rate (Table 4.27). Occupancy rates for acute and medium-long stay are not differentiated, as the provincial services questionnaire did not provide this differentiation.

Target levels are derived from the model. Bed occupancy rates of 85% and 95% for acute and medium-long stay facilities respectively appear to offer the optimal usage of available beds, while maintaining workloads for staff within acceptable limits. It was felt that because of the slower turnover of patients in medium-long stay facilities, a higher rate of bed occupancy could be achieved.

Table 4.27 Proposed bed occupancy norms in South African mental health services

	Baseline	Target
Acute	83%	85%
Med-long	83%	95%

4.4.7 Admission rate norms

4.4.7.1 Recommendations of provincial coordinators

Only two provincial mental health coordinators provided recommendations for this norm (Table 4.28). The mental health coordinator in the Western Cape commented that the high existing admission rate in that province reflects:

- inadequate regional hospital management of psychiatric patients;
- referrals from other provinces;
- inadequate community services;
- over-utilized hospital services, with multiple readmissions; and
- excessive referrals of patients from community settings and district hospital OPDs.

These factors were thought to contribute to the norms proposed by the provincial coordinator.

Table 4.28 Provincial mental health coordinators' recommendations for admission rate norms

Province	Baseline	Target
Gauteng *	150	130
Western Cape	200	-

* Excluding Lifecare
\- No recommendation received

4.4.7.2 Proposed admission rate norms

The following norms were proposed for annual admission rates:

Baseline: 150 per 100 000; and

Target: 180 per 100 000.

As with other proposed norms, the baseline rate is derived from the national annual admission rate.

The model provides admission rates of 516 for acute facilities and 20 for medium-long stay facilities, with a weighted mean of 386 annual admissions per 100 000 population. However, this was thought to be unrealistically high for current South African inpatient service resources. The figure generated by the model is directly attributable to short lengths of stay (averaging 17 days in acute facilities) and an emphasis on acute care beds. As noted elsewhere in this document, an excess of long stay beds with extremely long admission periods marks South African services.

Nevertheless, with shifts towards shorter admissions and proposed development of acute facilities, it is anticipated that admission rates may increase to reflect the greater turnover of patients in inpatient facilities. It was therefore proposed that the target rate be higher than the baseline rate, but lower than the weighted mean admission rate of the model. Recommendations of the provincial coordinators further informed the final norm level.

4.4.8 Length of admission norms (Average Length of Stay: ALOS)

4.4.8.1 Recommendations of provincial coordinators

Three provinces provided recommendations for ALOS norms (Table 4.29).

Table 4.29 Provincial mental health coordinators' recommendations for length of stay norms

Province	Type of facility	Baseline (days)	Target (days)
Gauteng	Psychiatric hospitals	300	180
	General hospitals	15	15
	Chronic	365	170
Free State	Acute (Psychiatric hospitals)	-	60
	Acute (Secondary hospitals)	-	25
Western Cape	General hospitals	12	-

4.4.8.2 Proposed length of admission norms

4.4.8.2.1 Baseline

The proposals for average length of stay norms for mental health services in South Africa are set out in Table 4.30. Because of the methodological problem in the gathering of the provincial data (which included acute and medium-long ALOS in one figure), baseline levels could not be recommended simply on the national median. However, the principle of developing a baseline level with a goal of national equity remains in place. With this in mind, the baseline level for acute beds in psychiatric hospitals and dedicated wards in general hospitals has been based on an estimation of the national median in these facilities. It was thought that the national mean for general hospitals of 11 days was shortened slightly by the presence of non-dedicated beds in these hospitals. The ALOS for acute beds in psychiatric hospitals and dedicated psychiatric wards of general hospitals was estimated to be slightly longer at 14 days.

No baseline norm for medium-long stay beds has been proposed for several reasons:

- The data of existing services in the provinces is inadequate to draw clear conclusions.
- Estimations like that of the baseline acute ALOS were impossible, given the considerable range of existing ALOS for medium-long stay facilities.
- The diversity of ALOS across the provinces shows the need for each province to address this particular issue according to their own situation.
- Several provinces report the presence of a cohort of patients who have remained in custodial care for many years and are

thoroughly institutionalised. It would be inhumane to suddenly apply a blanket policy of reducing ALOS and discharging these patients without careful consideration of their needs and circumstances.

The distinction between general hospitals with dedicated wards and those with non-dedicated wards was thought to be of particular importance in proposing norms for ALOS, since ALOS is likely to vary with the different types of care available in each. The proposals are an attempt to cover the full range of admission length according to the level and function of the care delivered.

Baseline norms proposals for ALOS for general hospitals and district hospitals with non-dedicated acute beds are based on the national mean for these facilities, but reduced due to the following considerations:

- The need to provide minimum levels of care, within the constraints of affordability in these facilities.
- Qualitative reports in the provincial workshops of extremely brief lengths of admission in many district hospitals and non-dedicated general hospital wards.

4.4.8.2.2 Target

Target levels draw on the recommendations from the model and are therefore based on estimations of the length of admission needed for people with severe psychiatric conditions. Broadly this is in keeping with current mental health policy in South Africa. The redefining of "chronic" as "medium-long stay" is an attempt to reflect the shift away from the perception of longer-term inpatient psychiatric care as custodial, to the perception of it as primarily rehabilitative. At the same time, as noted in chapter 2, there is some acceptance that there is a certain small sector of the patient population who will always require inpatient care, and should be housed either in community residential care facilities or in long term psychiatric hospitals.

As the model does not make recommendations for district hospitals and general hospitals with non-dedicated wards, these have been estimated drawing on recommendations from provincial mental health coordinators. These proposals also attempt to cover the types of admissions appropriate to district and regional hospitals, and not covered by dedicated psychiatric facilities.

Table 4.30 Proposed average length of stay (ALOS) norms in South African mental health services

Type of facility	Baseline (days)	Target (days)
Psychiatric hospitals (acute)	14	19
Psychiatric hospitals (med-long)	-	180
General hospitals (dedicated acute wards)	14	19
General hospitals (non-dedicated acute wards)	5	8
District hospitals (acute)	3	5

4.4.9 Readmission rate norms

4.4.9.1 Recommendations of provincial coordinators

As there were no figures on existing readmission rates, apart from those for West End hospital, provincial coordinators were not able to give comment on norms for readmission rates.

4.4.9.2 Proposed readmission rate norms

The proposals for readmission rate norms for South African mental health services are set out in Table 4.31. Because no provincial data were available, apart from those from West End hospital in the Northern Cape, the methodology of developing baseline proposals according to the national average of existing services could not be applied in this instance. Similarly,

the model does not provide readmission rates, and therefore recommendations on the basis of estimated need were not possible.

Instead both baseline and target proposals draw on a combination of the international literature and local readmission rates (as reported in South African literature and from West End hospital). As such these norms serve as a broad guideline for service delivery. Baseline norms are based broadly on reports of existing readmission rates in the literature. Target norms are proposed to support a gradual reduction in readmission rates with improved community and hospital care over time. Reduced readmission rates also have the goal of reducing costs of services through unnecessary repeated admissions.

Table 4.31 Proposed readmission rate norms for South African mental health services

Readmission rate within time periods of ...	**Baseline**	**Target**
1 month	15%	10%
6 months	35%	25%
1 year	40%	30%

4.4.10 Default rate norms

4.4.10.1 Recommendations of provincial coordinators

The provincial coordinators' recommendations for default rate norms are set out in Table 4.32. The recommendations are linked closely to the existing provincial ratios, and reflect the coordinators' concern to reduce default rates, with the implicit acknowledgement that some level of default is inevitable among patients with severe psychiatric conditions.

Table 4.32 Provincial mental health coordinators' recommendations for default rate norms

Province	Baseline	Target
Gauteng	7%	5%
Free State	-	10%
Western Cape	-	10%

"-" = no recommendation received

4.4.10.2 Proposed default rate norms

The proposed norms for default rates for ambulatory care mental health services in South Africa are as follows:

Baseline: 11%

Target: 8%

As with other norms the baseline proposal is based on the national mean. Unfortunately the model does not recommend default rates and therefore could not be used as a basis for the target proposal. The target norm is therefore based on the following considerations:

- The recommendations of the provincial coordinators.
- The understanding that improved service efficiency should lead to a reduction in default rates and therefore that the target rate should be lower than the baseline.
- Acknowledgement that some level of default is inevitable for patients with severe psychiatric conditions.

4.4.11 Summary: norms

In table 4.33 a summary is provided of all norms proposals. The summary is provided partly to illustrate the essential interdependence of the norms proposals. The implications of these findings are discussed in chapter 5.

Table 4.33 Summary: norms proposals

Norm	Definition	Norms	
		Baseline	Target
Bed/population ratio	(Beds ÷ total population) × 100 000	Acute: 13 Med-long + Comm res: 6	Acute: 28 Med-long + Comm res: 30
Staff/population ratio (clinical staff only)	(Staff ÷ total population) × 100 000	Total nurses: 16 Total staff: 20.7	Total nurses: 25.1 Total staff: 35.2
Staff/bed ratio (clinical staff only)	Staff ÷ beds (inpatient staff only)	Total nurses: 0.25 Total staff: 0.36	Total nurses: 0.45 Total staff: 0.56
Staff/DPV ratio (clinical staff only)	Staff ÷ DPV (Daily Patient Visits) (ambulatory care staff only)	Total nurses: 0.2 Total staff: 0.32	Total nurses: 0.54 Total staff: 0.93
Community/ Hospital ratio	1. (Community staff ÷ (hospital + comm staff)) × 100 2. (Attendance rate ÷ (admission rate + attendance rate)) × 100	2. Ratio 1: 25%-55% Ratio 2: 15%-45% 2. 66%	1. Ratio 1: 40% Ratio 2: 30% 2. 92%
Bed occupancy	(Inpatient days ÷ Available bed days) × 100	Acute: 83% Med-long: 83%	Acute: 85% Med-long: 95%
Admission rates	Annual admissions per 100 000 population	150	180
Length of stay	Median length of admission (days)	Psychiatric hospitals (acute): 14 General hospitals (dedicated wards): 14 (non-dedicated wards): 5 District hospitals: 3	Psychiatric hospitals (acute): 19 (med-long): 180 General hospitals (dedicated wards): 19 (non-dedicated wards): 8 District hospitals: 5
Default rate	Defaulters ÷ Appointments	11%	8%

4.5 Manual

The norms manual is set out in full in Appendix F.

Chapter 5. Discussion

5.1 Introduction

In this final chapter, the findings of the study are discussed, including the survey of current service indicators, the model, the proposed norms and the manual for service planning. A summary is then provided of the findings and their contributions to existing knowledge in the field of mental health service planning. This is followed by discussion of the limitations of the study and areas for further research.

5.2 Service indicators

5.2.1 Bed/population ratios

The national bed/population ratio was reported to be 48 beds per 100 000 population, with 13 acute beds and 16 medium-long stay beds (35 including Lifecare) per 100 000 population. There are substantial inequities between provinces.

The national bed/population ratios indicate low levels of inpatient care relative to figures in international settings, particularly developed countries. In the UK, for example, in addition to relatively well developed community mental health services, there are 28 acute and 70 medium-long stay beds per 100 000 population (Lelliot et al., 1994), more than double the South African totals of 13 and 35 respectively. As indicated in chapter 2 (Table 2.1), other countries have reported total bed/population ratios of 91 (Switzerland) (Vogel et al., 1997), as well as acute and medium-long stay bed/population ratios of 31 and 48 (Germany), and 33 and 93 (Sweden), respectively (Andrews, 1991). These figures are reported in addition to substantial community services. Levels of care in South Africa suggest the need for more attention to be given to psychiatric residential care in health policy, planning and budgeting.

The low inpatient resources are made more stark when one considers distribution between provinces. For acute beds, the ratio varied between 6 and 18 per 100 000, while for medium-long stay beds it varied between 0 and 29 (excluding Lifecare), and 0 and 83 (including Lifecare). As confirmed elsewhere, (Lee et al., 1997) mental health resources tend to be concentrated in provinces with densely populated urban

areas and greater economic development. Acute bed/population ratios of 6 (Mpumalanga), 7 (Northern Cape) and 7 (North-West) per 100 000 population indicate inadequate acute inpatient care. Mpumalanga has no medium-long stay inpatient or community residential facilities in a population of over 2.5 million. These poorer rural provinces are in urgent need of inpatient mental health service development.

However, these findings should not lead to the conclusion that services in urban provinces such as Gauteng are adequate. Gauteng's bed numbers mask the fact that Gauteng services include care of patients from surrounding rural provinces such as North West, Northern Province and Mpumalanga (Zwi, Dartnall, & Lee, 1997). In a count carried out in all provincial hospitals in Gauteng (excluding Lifecare) in September 1996, 29% of patients were identified as coming from other provinces (R. Lazarus and R. Thom, personal communication, 1998). In Lifecare facilities in Gauteng, patients from other provinces currently make up 33% of the total number of patients (R. Lazarus and R. Thom, personal communication, 1998). A combined bed/population ratio for the four northern provinces (Gauteng, Mpumalanga, North West and Northern Province) gives a total of 48 beds per 100 000 population (consistent with the national ratio), compared to a range of 6 to 101 when the ratios are reported per province (Table 4.1). The reliance of surrounding provinces on Gauteng's mental health services reflects problems of access, maldistribution of bed resources, inadequately integrated services and overly centralised service provision that is out of touch with local needs.

In provinces with a history of relatively well-developed specialist psychiatric institutions, the emphasis in terms of bed numbers remains on medium-long term care. This is clearly evident in medium-long stay bed/population ratios per 100 000 population of 18 (83 including Lifecare) in Gauteng; 16 (58 including Lifecare) in Northern Province; 29 in the Eastern Cape; and 16 (27 including Lifecare) in KwaZulu-Natal. In contrast to this situation, current mental health policies emphasise the short term treatment of psychiatric patients in acute inpatient facilities and concerted rehabilitation programmes in residential care and ambulatory care facilities in the community (Department of Health, 1997). There is a need to downscale these

institutions and shift beds either to acute care or community-based residential care in keeping with current policies.

In some provinces, downscaling has occurred, but this has been driven by financial concerns to reduce the cost of mental health care, rather than clinical needs. In short, deinstitutionalisation has been seen as a cost-saving strategy. As a result of this strategy, the reduction of inpatient bed numbers has not been accompanied by the development of residential and ambulatory care in the community. For example, in the Western Cape, which has historically enjoyed the highest levels of mental health service, ratios have fallen from 61 in 1993 (Ensink et al., 1997) to 34 psychiatric beds per 100 000 in 1998. However, no community residential care facilities were reported in the Western Cape. Gauteng was the only province to report residential care facilities in the community, reporting a total of 305 places. It is clear that community-based residential care facilities are extremely inadequate, and need to be developed if psychiatric hospitals are to continue to reduce medium-long stay bed numbers. Deinstitutionalisation is not a cost-saving strategy and needs to be accompanied by the development of community-based services in order to be clinically effective, as shown in several international studies (Knapp et al., 1994; Knapp et al., 1998; Thornicroft et al., 1999).

The findings for bed/population ratios also indicate the need for the development of more sophisticated information systems for the further monitoring of inpatient care. A more detailed breakdown of acute bed numbers according to district, regional and specialist hospitals would provide a clearer picture of service delivery in those settings.

Bed/population ratios are complex, and cannot stand alone as mental health care indicators. There is also a need to develop other indicators that have a bearing on inpatient care. First, the optimum number of beds is dependent on the level and the sophistication of the community services which function alongside inpatient facilities (Surles et al., 1987; Rossler et al., 1992; Vogel et al., 1997). Indicators of community mental health service development need to be utilised. Second, in the post-deinstitutionalisation era in developed countries, community-based residential care facilities have taken over the role of long term psychiatric institutions in many

instances (Randolph et al., 1991). Therefore the number of psychiatric hospital beds does not necessarily indicate the level of residential care that is available. Numbers of community residential care places need to be reported. Third, information on bed/population ratios needs to be supplemented by information on the quality of care.

The results of the bed/population ratios indicate the need to develop acute inpatient psychiatric services in South Africa, reduce levels of chronic care where appropriate, and redirect resources towards the development of community-level residential and day care services. It is crucial to develop accurate indicators to monitor this process.

5.2.2 Staff/population ratios

The national staff/population ratio was reported to be 19.5 per 100 000 population, with an inter-provincial range of 5.7-31.6 (Table 4.2).

The results indicate low levels of mental health staffing in South Africa, compared to those in developed countries and even some developing countries. This is exemplified by the ratios for psychiatrists. The total of 135 psychiatrists employed in public sector mental health services in South Africa corresponds to a ratio of 0.4 per 100,000 population. This is lower than the ratios for developed countries such as Sweden (12.5 per 100,000) (Holmberg, 1988), the USA (16.0) (Desjarlais et al., 1995) and developing countries such as Egypt (1.0) (Okasha et al., 2000), Brazil (4.4) (Iacoponi et al., 1991) and Columbia (3.5) (Orjuela-Mancera et al., 1991). However, it is higher than India (0.23) (Ramana et al., 1991) and other African countries such as Botswana (0.3), (World Psychiatric Association, 1996), Ethiopia (0.02), Kenya (0.1), Mali (0.03) (Chikara et al., 1991), Nigeria, (0.1) (World Psychiatric Association, 1996) and Zimbabwe (0.1) (Chikara et al., 1991). Also, there was less than 1 staff member per 100,000 for all personnel categories except nurses. Clearly, it is impossible to deliver a substantial service with such low ratios. Comparisons with international staff/population ratios are compromised by an absence of comparable data for many of the categories of staff that were included in the present study.

Consistent with previous reports, (Ensink et al., 1997; Flisher et al., 1997; Lee et al., 1997) there was considerable variation in the staffing levels between provinces. The Northern Province had the highest total staff/population ratio, although this may

reflect inaccurate data, as indicated in chapter 4, section 4.2.2. After the Northern Province, Gauteng and the Western Cape had the most favourable staff levels, with overall staff/population ratios of 26.2 and 24.7 respectively. The Northern Cape was at the other extreme, with a total staff/population ratio of 5.7 per 100,000 population.

In general, the predominantly rural provinces had the lowest total staff/population ratios, confirming findings in the literature (Flisher et al., 1997). The shortages in rural provinces are exemplified in the Northern Cape, where one psychiatrist covers a vast geographical area, and clinics operate a postal drug service with 6-monthly visits from the psychiatrist. However, as with bed/population ratios, this provincial-level data obscures the historical legacy of centralised and institutionalised mental health services in South Africa. As a result of this legacy, there is considerable cross-border flow between provinces, as noted in bed distribution. Therefore inflated staff figures for Gauteng and the Western Cape probably do not reflect the reality of service provision in those provinces as they continue to provide care for patients referred from surrounding rural provinces. Indeed it is likely that people in remote rural parts of the Western Cape have a similar level of access to mental health service providers as their counterparts in predominantly rural provinces (Ensink et al., 1997).

The inter-provincial discrepancies that were observed for the total staff were in most cases paralleled by similar discrepancies for the specific occupational groups. The psychologist/population ratio, for example, was 0.7 and 0.6 per 100,000 in Gauteng and the Western Cape respectively, 0.4 in KwaZulu-Natal and 0.2 or less for the remaining provinces. Relative to the international literature, psychiatric nurses are inadequately provided, in spite of the fact that there may be over-reporting of psychiatric nurses in Table 4.2. Similarly, Occupational Therapists are inadequately provided for, given present policy shifts towards the development of psychosocial rehabilitation services for mental health care (Department of Health, 1997).

However, there did not appear to be an association between the ratio for medical officers (MOs) and that for total staff or other staff categories. For example, provinces with meagre staffing resources in other categories (such as North West and Mpumalanga) had the highest MO/population ratios of 1.3 and 0.8 per 100 000 population, respectively. This could reflect inter-provincial policy differences

regarding the deployment of medical officers to provide mental health services. It may also reflect inaccurate data, since medical officers who provide medical (non-psychiatric) care may have been inaccurately included in numbers of medical officers who provide specifically psychiatric services.

As the findings for the Northern Province suggest, the results should be regarded with a measure of caution since the data may be of sub optimal validity. As a further example, the Northern Province, Mpumalanga and the North West all reported during the provincial workshops that they did not have any full-time psychiatrists. The data supplied from the questionnaire indicated otherwise (3, 5 and 3 FTE psychiatrists respectively), even though the data was returned to the provinces for checking. It was decided not to alter the figures provided by the provinces, but to report them as they were provided on the questionnaire.

In spite of the best efforts and full cooperation of the mental health coordinators, these findings highlight the limitations of present provincial mental health information systems. More specifically, the results draw attention to some of the difficulties of monitoring mental health service delivery within an integrated health service, for example reporting numbers of FTE mental health staff among general health workers (such as general primary care nurses and medical officers).

These problems are compounded by the limitations of staff/population ratios *per se*. These ratios provide only a broad global indication of staffing available for the population. Staff/population ratios also need to be reported alongside a range of other considerations, including level, quality and appropriateness of training; systemic issues related to supervision, support, referral procedures and the functional units within which staff deliver care (Monitor Company, 1996; Gray, 1998); clinical policies and practice guidelines or parameters; management and health policy; and the quality of care offered. Other indicators such as bed/population ratios, the distribution of staff between hospital and community services, bed occupancy rates, admission rates, length of stay, readmission rates, and default rates all have a bearing on staffing requirements. The results for this indicator therefore need to be interpreted in relation to a range of other indicators in order to provide a comprehensive picture of mental health service provision.

The findings for staff/population ratios have several implications for staff roles, training and deployment. Firstly, because of the shortage of staff in most settings, there is potential for more specialised staff to develop roles of teaching, consultation and supervision. General health staff would be better placed to deal with the larger volume of less complex cases, and refer complex cases to more specialised services. This arrangement makes more efficient use of scarce staffing resources.

Secondly, it was clear from discussions during the provincial workshops that in many settings nursing staff are taking over the task of prescribing medication for psychiatric patients. This appears to be largely due to the shortage of medical staff and the active role played by nursing staff in the care of psychiatric patients. There is a need for a re-appraisal of *de facto* prescribing practices and for policy to be developed on prescription privileges. If necessary, nursing staff and psychologists may need to receive added training and accreditation in order to prescribe.

Thirdly, the severe shortages of mental health staff in remote rural provinces raises the issue of deployment. There is a need to develop incentives that will attract mental health staff to these settings. These might include (1) legal strategies, e.g., a compulsory requirement for all mental health professionals to serve in certain areas for a period of time (such as a 1-year community service, immediately after qualification); (2) professional strategies, e.g., post-qualification training opportunities awarded only after completion of service in a less popular area; (3) financial strategies, e.g., increased salaries for less popular posts, special benefits such as a car, accommodation subsidies, children's education, and enhanced pension, as well as higher standard of residence in rural areas; and (4) educational strategies, e.g., preparing professionals during their training to function in remote rural areas with minimal technology and a high degree of independence; special training for staff already working in these areas, such as bringing staff together for shared experiences and training; preparation for work with less qualified colleagues such as village health workers, family mental health workers and traditional healers; and maintaining strong links between academic institutions and remote rural areas (WHO, 1993b).

5.2.3 Staff/bed ratios

The national staff/bed ratio for all clinical staff is 0.3 and the national nurse/bed ratio is 0.25, indicating one nurse for every four beds. There is wide variability in provincial staff/ bed ratios, from 0.22 in Gauteng to 0.89 in Mpumalanga.

Staff/bed ratios in South African mental health services are low, relative to those in developed countries. For example, the national nurse to bed ratio is a quarter of that in psychiatric hospitals in the UK, which between 1983 and 1986 reported a 1:1 nurse to bed ratio (excluding managers and tutors) for both mental handicap and psychiatric hospitals (Department of Health and Social Security (DHSS), 1988). In 368 facilities in 8 National Health Service districts in the UK in 1996, staff/bed ratios were reported as 1.27 in acute wards and 0.95 in long stay wards (Lelliot et al., 1996).

Low staff/bed ratios in South Africa indicate the strains under which current mental health services function in inpatient settings. If there are inadequate staff numbers in wards, patients can become neglected, may not receive the care they require, and their readiness for discharge may be poorly assessed, leading to relapse, disruptive behaviour in the community or readmission. There are other negative consequences, such as excessive strain being placed on inpatient staff, with associated demotivation and burnout (Thornicroft et al., 1999).

In addition to the low national staff/bed ratios, there is marked inequity between provinces in staff/bed ratios. Gauteng has the lowest staff/bed ratios in the country. This is in spite of superficial impressions from other indicators, which seem to show relatively well-developed services in Gauteng. For example, Gauteng has the highest total bed/population ratio, and among the highest staff/population ratios. The low staff/bed ratio indicates that inpatient staff resources are stretched in spite (or because) of relatively large numbers of beds. Lifecare facilities are included in staff/bed ratios for Gauteng, and, given evidence of low staff/bed ratios in these facilities (Porteus et al., 1998), it is likely that these facilities drag down the staff/bed ratios in provincial facilities. This highlights the need to examine the adequacy of staff/bed ratios in Lifecare facilities.

The Western Cape and the Free State appear to be relatively well resourced in their provision of staff per bed. In the Western Cape, the nurse/bed ratio of 0.48 reported in the present study was consistent with the ratio of 0.45 reported previously (Ensink et al., 1997). There is evidence from the bed/population ratios that bed numbers having decreased in the 5 years since the 1993 bed/population ratios reported by Ensink et al., (1997). There is also qualitative evidence from the provincial workshop in the Western Cape that staff numbers have decreased, associated with budget cuts in this province. Reductions in staff numbers were accelerated by the introduction of voluntary severance packages and the freezing of posts once they were vacated. The consistent nurse/bed ratios over this time therefore seem to indicate that staff numbers in inpatient settings have fallen in tandem with bed reductions.

Relatively high staff/bed ratios (of 0.5) in the Free State seem at least partially due to the reduction of psychiatric bed numbers during the last 10 years (Freeman et al., 1999a; Freeman et al., 1999b; Lee et al., 1999a; Lee et al., 1999b). This is consistent with patterns in developing countries, where deinstitutionalisation generally results in more favourable staff/bed ratios (Raftery, 1992). As bed numbers are reduced, staff tend to remain on hospital establishments, increasing staff/bed ratios. In the case of the Free State, staffing appears to have remained relatively consistent during this time. Although there is no clear evidence as to the reasons, it is possible to speculate that the active deinstitutionalisation programme and reported successes of "the Free State model" have contributed to staff retention (Freeman et al., 1999a; Freeman et al., 1999b; Lee et al., 1999a; Lee et al., 1999b). The challenge in this province is to maintain present staff/bed levels, and simultaneously to continue to develop staff resources in community settings.

Interpretation of the reported staff/bed ratios is limited by the following factors. Firstly, staff/bed ratios for Mpumalanga appear inflated relative to qualitative accounts during the provincial workshops that staffing in inpatient care is grossly under-resourced. For example, accounts were provided of patients being chained to beds because staff were not available to restrain the patients appropriately. The data inaccuracy seems to be due to over-reporting of nurses with a psychiatric training (who do not necessarily render a psychiatric service), and low numbers of psychiatric beds, as indicated by the low bed/population ratios for Mpumalanga. As mentioned,

Mpumalanga has no medium-long stay facilities for a population of over 2.5 million people. Qualitative accounts indicate that inpatient mental health staffing in Mpumalanga is grossly inadequate, in spite of the inflated figures in the table. This is a matter of urgent attention.

Secondly, because of limitations of the questionnaire it was impossible to obtain data about staff in separate "acute" and "medium-long stay" categories. This is because staff numbers were not requested separately for acute and medium-long stay facilities. As a result it was only possible to calculate staff/bed ratios for the more crude overall figure of total inpatient staff to total beds. Specific staff/bed ratios for acute and medium-long stay facilities are areas for further study.

Thirdly, this study focused exclusively on clinical staff when reporting staff/bed ratios. During the provincial workshops it was mentioned that some provinces, when calculating budgets for routine service planning, generate staff/bed ratios for total staff, including administrative, cleaning and maintenance staff. This leads to an apparent inflation of staff/bed ratios, relative to the actual clinical care provided. In contrast to this method, this study has set out to specifically report clinical staff/bed ratios, in order to allow comparison with international figures, and to assess the adequacy of clinical care. This methodological discrepancy needs to be kept in view when comparing the results of this study with some provincial reports of staff/bed ratios. If possible, these findings should be adjusted to include provincial reports of the numbers of support staff on staff establishments when comparisons are conducted. In the longer term, it will be important to develop a consistent methodology when planning for national and provincial services. Again, this is an area for further study.

The findings for staff/bed ratios indicate the general inadequacy of inpatient staffing levels in mental health services in South Africa. There is evidence that some provinces, particularly the Free State, have managed to maintain adequate staff/bed ratios, in the context of developing community-based care. For other provinces, the results of this study indicate that there is an urgent need to improve staffing levels for inpatient care.

5.2.4 Staff/patient ratios

The total clinical staff/DPV ratio is 0.6 (provincial range: 0.1-4.0) and the total nurse/DPV ratio is 0.4 (provincial range 0.1—2.4). The national staff/DPV ratio of 0.6 implies that on average, every ambulatory care staff member sees less than two patients per day. The absence of specific data on staff/DPV ratios in the international literature limits comparison. However, specific aspects of the results merit further discussion.

The results provide a clear indication of the low numbers of patients who are reported to use ambulatory care facilities, relative to staff. For example, in the Northern Province and North-West, total nurses and total staff appear to outnumber patients who use the service daily. There are several possible explanations for these patterns:

(1) Patients do not attend services because they cannot access services due to transport difficulties; they cannot afford services or transport costs; social stigma prevents use of mental health services; patients choose to use other services (such as traditional and faith healers); or the demand at general primary care clinics prevent patients accessing mental health care (either because queues are too long, or primary care health workers do not detect mental health problems). The under-utilisation of services because of transport difficulties may in turn lead to considerable staff time being spent on travel.

(2) There is under-reporting of patient attendances at clinics and hospital out-patient departments (OPDs). This may be because the number of patients with mental health problems who attend clinics and OPDs is not routinely reported. For example, from qualitative observations of the data, the questionnaire may have been completed in some instances by using numbers of patients on the local case register (in those instances where such a register exists), rather than the actual patients who attended services.

(3) There may have been over-reporting of staff numbers in ambulatory care, for example by including all integrated staff, rather than those FTE staff who render a psychiatric service.

(4) There may also be instances where diminished support staff resources result in clinical staff taking on inappropriate responsibilities as managers and administrators. This means that these staff are less able to take on clinical responsibilities and consult with patients.

From the results, it is difficult to identify the relative importance of these factors. There does appear to be clear evidence of unmet need for services, as reported elsewhere in the South African literature (Foster et al., 1997a) and in international studies (Andrews & Henderson, 2000). This would support the first of the above four hypotheses. However, from inconsistencies in the data noted earlier, and reports from provincial workshops, there is also evidence to suggest that the data reported is less than reliable. For example, there is evidence from the reports of staff/population ratios that general health workers were reported as providing a FTE mental health service in some provinces. For this latter reason, the results for staff/DPV ratios should be interpreted with caution.

These methodological difficulties provide a useful indication of problems with information gathering in mental health services in South Africa, particularly in the context of the integration of mental health into general health services at primary level. It is frequently difficult to discern whether general health staff are engaged in mental health or general health care, and therefore difficult to plan services accordingly. Differing levels of integration in provinces, and differing interpretations of the meaning of integration, further complicate this situation, as demonstrated in a study of the integration of mental health into district general health services in the Western Cape (Muller, Ensink, Zissis, Leon, & Robertson, 1999).

The findings of this study indicate that staff/DPV ratios are complex and informed by a range of factors. These factors are likely to change with shifts in policy and treatment practices in mental health care. If the proposed policies (Department of Health, 1997) are to be implemented in future, likely changes include increased

detection of patients with severe psychiatric conditions at ambulatory care level; increased management of patients by psychiatric community services; the development of information systems, with changes in the reporting of the number of patients who use the services, and the number of staff who render FTE mental health service within an integrated system; and shifting staff roles, from containment to proactive roles of rehabilitation and mental health promotion.

Because the staff/DPV ratio is contingent on a range of different factors, it may mask important changes. Some of the proposed changes may lead to increases in reported patient visits (such as improved information systems and improved detection and management at community level), while some may lead to increased reporting of staff numbers in ambulatory settings (such as improved reporting of FTE mental health staff and training of general health workers in mental health). These factors need to be monitored closely, alongside staff/DPV ratios, in order to develop more sophisticated ways of monitoring ambulatory services in the community. In this context, it is important that other indicators of ambulatory services (for both staff and patients) are developed, in order to monitor changes.

Of particular note is the development of psychosocial rehabilitation staff. The results of this study indicate low numbers of OTs and OTAs, relative to other staff in ambulatory care settings. In the light of the emphasis of current mental health policies on psycho-social rehabilitation (Department of Health, 1997), there is an urgent need for the development of rehabilitation skills, not only as the domain of OTs, but as an integral part of mental health care.

In conclusion, the findings for staff/DPV ratios indicate the possible presence of unmet need for mental health services. They also reflect difficulties in data gathering in current provincial mental health services, and the need to develop information services that accurately reflect both staff activity and patient service utilisation.

5.2.5 Community/hospital ratios

As community/hospital ratios have not been developed elsewhere in the literature, direct comparison of this indicator with other studies is limited. However, there are

several aspects of the ratios for staff and patient service utilisation which merit discussion.

5.2.5.1 Staff

The results indicate that on average, 25% of psychiatric public sector staff are located in community settings in South Africa. If alternative definitions of "community" and "hospital" are used, this figure is reduced to 17%. There is wide variability between provinces. For definition 1, provinces reported that between 11% and 70% of staff are community-based. For definition 2, the provincial range was 3% to 56%.

On a general level, the results indicate that public sector mental health staff in South Africa tend to be concentrated in hospital settings. Contrary to current mental health policy, which emphasises the development of community-based services (Department of Health, 1997), staffing distribution appears to still labour under the legacy of hospital-based care.

There are exceptions to this general trend. The relatively high community/hospital ratios for staff in Mpumalanga (55%) and North West (70%) confirm qualitative reports during the provincial visits that hospital services are severely underdeveloped in these provinces. While there is a general trend internationally towards deinstitutionalisation, there is evidence that the success of this process hinges on an optimum balance between community services and a core of appropriate and well-functioning hospital services (Rochefort, 1992; Mechanic, 1996; Fioritti et al., 1997). The high community/hospital ratios in these two provinces indicate that the balance is not favourable for a successful deinstitutionalisation programme and that the priority lies with the development of appropriate hospital facilities.

The large discrepancies between Definition 1 and 2 in certain provinces reveal some of the resource distribution problems in these services. In provinces with relatively well-developed hospital services such as the Eastern Cape and KwaZulu-Natal, there appears to be a tendency to retain staff in hospital establishments. Thus "community" staff, in terms of Definition 1, are often

still retained within hospital establishments. These hospital establishments tend to be urban and central. This reflects a tendency for mental health services in these provinces to cater largely for the needs of the urban inpatient population rather than the rural ambulatory population.

These patterns point to the need for improved parity in the distribution of services between hospital and community-based care. While some provinces, particularly Mpumalanga and North West, urgently need to develop basic inpatient care, others such as the Western Cape, Eastern Cape and KwaZulu-Natal need to involve their hospital-based staff in the support and training of staff in the community, particularly at PHC level. PHC staff in rural areas are especially in need of such support and training. This would increase the number of patients who could be managed at PHC level, thus reducing the proportion that are referred for admission to central psychiatric institutions. Possible measures to assist this have been suggested in discussion of staff/population ratios.

To summarise, the findings for this indicator reveal problems in human resource distribution, with certain provinces providing inadequate hospital care, and others continuing to retain the focus of care in centralised hospitals. Generally the trend appears to remain one in which staff are located in hospital-based services. This is contrary to current policy.

5.2.5.2 Patients

The results indicate that on average, 66% of patient contacts with mental health services occur through ambulatory care services in South Africa. This means that approximately one third (34%) of reported patient contact with services takes the form of hospital admissions.

This finding clearly demonstrates that the emphasis remains on hospital-based forms of treatment in South African mental health services. Once again, this runs contrary to current policy that emphasises the development of community-based mental health services. It also runs contrary to *prima facie* assumptions about the nature of admissions and outpatient contacts. Hospital

admissions are generally longer in duration than outpatient contacts and more expensive. One might therefore logically assume that numbers of outpatient contacts would generally far outnumber hospital admissions. Current patterns of mental health care appear to demonstrate the opposite in many provinces, and reflect South Africa's legacy of institutionally based care.

Apart from the outlying figures for Northern Cape (93%) and KwaZulu-Natal (44%), the community/hospital ratios for patient service utilisation in most provinces fall within a relatively limited range of 60-78%. This indicates that among most provinces there is a general trend of low outpatient attendance rates corresponding with low admission rates. This is in spite of wide variability between these provinces in admission rates and attendance rates. For example, for these provinces, the annual ambulatory attendance rate ranges from 160 per 100 000 in the Free State to 458 in the Western Cape, and the annual hospital admission rate from 70 per 100 000 in the Free State to 300 in the Western Cape.

This pattern indicates that for most provinces, low hospital service utilisation frequently corresponds with low community service utilisation. If patients are not detected in community services, they tend to be admitted less frequently, and less frequent admissions lead to less frequent community-based contacts. Conversely, as patients are detected in community services, they are admitted more readily, and as they are admitted more readily, they are referred back to community and OPD services.

This is clearly demonstrated in the Northern Province, Mpumalanga, North West, Free State, and KwaZulu-Natal. These provinces all report admission rates and ambulatory care attendance rates which both fall below the national rates. In these provinces there is therefore low utilisation of both hospital and community services, relative to other provinces. This seems to indicate a pattern of substantial unmet need in these provinces. The trend towards unmet need for psychiatric services is confirmed elsewhere in the South African literature (Foster et al., 1997a), in international studies (Andrews et al., 2000) and in qualitative reports during the provincial workshops.

The high community/hospital ratio for Northern Cape reflects low admission rates and high ambulatory attendance rates. This is consistent with qualitative observations during the provincial visits of a rural province with a low population density and a large central psychiatric institution that is difficult to reach for much of the population.

From qualitative observations of the data and personal communication from the provincial coordinator concerned, the low community/hospital ratio for KwaZulu-Natal reflects low response rates from regional health managers in providing ambulatory service data on psychiatric patient attendances.

Apart from the community/hospital ratios, the ambulatory care attendance rate itself seems extremely low, relative to other estimates of utilisation rates in South Africa (Rispel et al., 1996) and internationally (WHO, 1996b). In guidelines for PHC services, Rispel et al (1996) estimate service utilisation rates for coverage of "chronic psychiatry" with a minimum of 0.04 and full coverage of 0.16. Converting the low and high attendance rates for KwaZulu-Natal and the Western Cape to service utilisation rates, yields figures of 0.012 and 0.055 respectively. The Western Cape's high utilisation rate is comparable to the figure of 0.04 for minimum coverage of "chronic psychiatry", but well below the full coverage figure of 0.16. The lowest figure for KwaZulu-Natal appears to bare little relation to even the minimum coverage estimate. All these utilisation rates are substantially below the WHO's utilisation estimates of 0.44 (WHO, 1996b).

The low ambulatory care attendance rate, as noted in the Staff/DPV ratios, can be attributed at least partially to low detection in community services; inadequate information systems for monitoring patients who do use mental health services; and an overemphasis on hospital-based treatment.

To summarise, service utilisation patterns indicate a strong emphasis on hospital-based care, in spite of current policy that emphasises the need to develop community-based mental health care. There is also evidence of

substantial unmet need in some provinces, and problems with information gathering in the provision of ambulatory care. Patterns of community/hospital staff distribution and service utilisation by patients are likely to change with planned downscaling of institutions (Department of Health, 1997), rationalisation, increased detection of patients and development of information systems. Community/hospital ratios, as described in this study, provide a useful indicator for monitoring patterns of service development over time, while highlighting resource and distribution problems between provinces. There is a need to continue to monitor the relationship between hospital and community-based services during planned service changes.

5.2.6 Bed occupancy rates

The national bed occupancy rate of 83% (provincial range: 63-109%) for all psychiatric inpatient services in South Africa is comparable with international rates. The WHO, in the development of its model for national mental health programmes, assumes a bed occupancy rate of 85% for acute inpatient facilities and 95% for medium-long stay facilities (WHO, 1996b). In the deinstitutionalisation programme of an Australian mental hospital, the bed occupancy for the entire hospital of 638 beds was 84% at the onset of a deinstitutionalisation programme. This increased to 86% after the 5 years of the programme (James, 1987).

The bed occupancy rate for the Western Cape (of 92%) is higher than the rate of 87% reported by Ensink et al., in 1992/93 (Ensink et al., 1997). However, it is likely that increases in bed occupancy have been associated with decreases in numbers of available beds in the Western Cape over the past 5 years, as noted earlier (section 5.3.1). The absence of previous studies in other provinces limits further comparisons of other provincial data.

Excessively high and low bed occupancy levels reflect problems of overcrowding and under-utilisation of hospital resources, respectively. Excessively high bed occupancy levels in Mpumalanga are a source of particular concern. The bed occupancy rate results for this province (of 109%) are consistent with qualitative reports obtained during the provincial workshop that there were insufficient beds, to the extent that the provision of "floor beds" was commonplace. This accounts for bed occupancy levels

that exceed 100%. High bed occupancy levels in this instance are associated with poor quality of care. Bed occupancy rates of 97.5% in acute facilities in the UK have been assessed as stretching services to breaking point (Powell et al., 1995). Rates that exceed these by more than 10% in Mpumalanga provide an indication of the urgency of the situation in this province.

Conversely the low bed occupancy rates of 63% in the Northern Province and 65% in the Northern Cape point to the need for more effective use of existing resources. A simplistic conclusion from this analysis may be to call for the reduction of beds in these provinces. This may be necessary in the case of long stay beds in certain facilities, in keeping with current policy shifts towards the provision of community-based care (Department of Health, 1997; Freeman et al., 1997). But, in general, it seems more likely that these figures reflect low staff/bed ratios and poor access to services, as reported during the provincial visits. Low staff/bed ratios may imply that even if beds are available, staff shortages limit admissions to wards. In the case of geographically large, rural provinces such as the Northern Cape, it is likely that this problem is augmented by the inaccessibility of hospital facilities, particularly in areas of low population density. There may therefore be a more urgent need to increase staffing levels and access to inpatient services in these provinces.

There were two major limitations to this indicator. First, the questionnaire did not request separate bed occupancy rates for acute and medium-long stay facilities. These provincial ratios may mask important variation across acute and medium-long stay facilities. In terms of the future development of this indicator, there is a need to develop more specific bed occupancy rates for different levels of care, from district hospitals to specialist psychiatric institutions, with specifications according to different kinds of facilities (acute, medium-long stay and forensic facilities). Second, the method of estimating numbers of available beds in integrated mental health settings has limitations. With increasing levels of integration in district hospitals, this problem is likely to persist. The development of provincial information systems needs to address this issue in the monitoring of bed occupancy indicators for mental health, particularly in general district hospitals.

5.2.7 Admission rates

The national annual admission rate of 150 per 100 000 (provincial range: 33-300) is considerably lower than that in developed countries. Annual admission rates (per 100 000) of 600 in Mannheim, Germany (Hafner, 1987), 705 in the USA (Goldsmith et al., 1993), 420 in an Illinois State Hospital (Pomp et al., 1988), 494 in English psychiatric hospitals (Cochrane et al., 1989), and 220 in Emilia-Romagna, Italy (Fioritti et al., 1997), have been reported.

Low admission rates relative to developed countries may be partially attributable to the high level of unmet need in mental health care in this country (confirmed by the findings for other indicators). It may also be attributed to the historical pattern of custodial care in long stay facilities in South Africa, which implies less turnover of patients and therefore fewer admissions. As long stay bed numbers are reduced and acute facilities developed, admission rates may increase. The task of services will be to ensure that patients are successfully managed in community settings, while continuing to admit those patients who are in need of inpatient care.

As with other indicators, there is considerable variability in admission rates between provinces. Of note is that better resourced provinces such as the Western Cape and Gauteng have relatively high admission rates. As expected, those provinces with few psychiatric hospital facilities (such as Mpumalanga and North West) or problems of access to hospital facilities (in the Northern Cape) have low admission rates.

It is likely that low admission rates for Mpumalanga, North West and Northern Province, together with high admission rates for Gauteng, provide evidence of cross-border flow (shown in the findings for other indicators). The same may be said for cross-border flow of patients from Northern Cape and Eastern Cape to the Western Cape. The low admission rates for Free State appear to reflect the strict admission criteria in Oranje Hospital, the main tertiary hospital in that province, and the concerted attempt over the last 10-12 years to manage patients with severe psychiatric conditions in community settings (Freeman et al., 1999a; Freeman et al., 1999b; Lee et al., 1999a; Lee et al., 1999b).

A limitation of this indicator is that admission rates are calculated for all inpatient facilities regardless of the specific setting. This is in spite of the fact that patients with severe psychiatric conditions may be admitted to a range of settings from general district hospitals to wards in general tertiary institutions and specialist psychiatric institutions. Admission rates therefore provide a global picture of the rate at which patients are admitted to psychiatric facilities. More sophisticated studies in future might explore admissions according to types of facilities.

As noted in chapter 2, admission rates are complex. Diverse patterns of admission during deinstitutionalisation indicate that admission rates are particularly sensitive to the successful management of patients in community settings. As Hickling warns (Hickling, 1991), low admission rates do not necessarily reflect effective management of patients in community settings and should be interpreted with caution. They may indicate poor referral procedures, under-diagnosis or unmet need for services. Conversely, sharp increases in admission rates are likely to indicate that deinstitutionalisation is proceeding too rapidly, with inadequate development of community services.

With planned shifts towards shorter admissions, more acute facilities, and improved detection of patients in South Africa, it may be anticipated that admission rates will increase to reflect the greater turnover of patients in inpatient facilities. The monitoring of admission rates during this process is crucial to the development of appropriate mental health services.

5.2.8 Length of admission (Average Length of Stay: ALOS)

There is a national ALOS of 219 days in psychiatric hospitals (provincial range: 60-3650), 11 days in general regional hospitals (provincial range: 2-28), and 7 days in district hospitals (provincial range: 2-21).

The results indicate that South African mental health services continue to be marked by patterns of long-term custodial care. Of note are psychiatric hospitals in Gauteng, the Northern Province and the Northern Cape that report ALOS of over 1.5 years. Anecdotally, several individual questionnaires reported average lengths of stay in

excess of 10 years. This pattern has been confirmed in a study of quality of care in chronic psychiatric hospitals in South Africa (Porteus et al., 1998).

These findings stand in stark contrast to the ALOS in many developed countries, post-deinstitutionalisation. Median length of stay in Veterans Affairs inpatient facilities in the USA dropped from 26.7 in 1994 to 12 days in 1998 (Federman et al., 2000). Medians of patients' length of stay in three psychiatric hospitals in the UK from 1978 to 1985 were 26, 26 and 49 days respectively (Lawrence et al., 1991).

A second feature of the reported ALOS in this study is the diversity between provinces. Oranje Hospital, the major specialist psychiatric hospital in the Free State, appears to maintain tight control over length of stay, with its programme of active community-based care. Other provinces, notably Northern Province, Gauteng and the Northern Cape continue to maintain long-term custodial patterns of care. As a further indication of the shortages in Mpumalanga, this province has no medium-long stay facilities and only brief admission periods in district hospitals. Consistent with reports during the provincial visits and the findings for other indicators, Mpumalanga struggles to provide a service in inadequate facilities.

The national median ALOS of 11 and 7 days for general and district hospitals respectively, is low, though comparable with the international literature on ALOS in acute facilities. In an acute psychiatric unit in central London the median length of stay of a cohort of patients admitted to a 60-bed facility over 13 weeks was 15 days (Priest et al., 1995). In the psychiatric ward of a public general hospital in New York, the average length of stay for 700 patients (mostly involuntary or emergency admissions) was 22 days (Curtis et al., 1992).

The findings for this indicator are limited by the fact that lengths of stay were not requested according to types of facility in the questionnaire. This conflated the ALOS for acute and medium-long stay facilities in psychiatric institutions, and results provide an unrealistic pattern of inpatient care. It is likely that the ALOS for medium-long stay facilities in psychiatric hospitals is even higher than that reported here.

Current international patterns of care and local policy recommendations (Department of Health, 1997) demonstrate the need to revise lengths of admission in medium-long stay facilities in South Africa. However, during the provincial workshops, several provinces report the presence of a cohort of patients who have remained in custodial care for many years and are thoroughly institutionalised. It would be inhumane to apply a blanket policy of reducing ALOS and discharging these patients without careful consideration of their needs and circumstances. The diversity of ALOS across the provinces shows the need for each province to address this particular issue according to their own situation and implement changes in the most humane, clinically sound and cost-effective manner.

At the same time, as indicated in the literature review in chapter 2, there appears to be a certain small sector of the patient population who will always require inpatient care, and should be housed either in community residential care facilities or in appropriately equipped long term psychiatric hospitals. Alongside this proposed change there is an urgent need for further research into humane and clinically sound criteria for discharging chronically institutionalised patients.

5.2.9 Readmission rates

As noted in chapter 4, readmission rates were only available from West End hospital in the Northern Cape. The readmission rates for West End hospital of 33% per annum are broadly consistent with reports in the international literature. Annual readmission rates of 33% in Geneva, Switzerland (Vogel et al., 1997), 35-50% in a Louisiana state hospital (Distefano et al., 1991), and 23% in Tubingen, Germany (Stevens et al., 2001) have been reported.

Readmission rates for West End were also consistent with previous South African studies, which reported that on average 36.5% of patients discharged from a major psychiatric hospital in Cape Town were readmitted within the same year. This pattern seems to indicate the need to reduce readmission rates through the development of services that maintain and support patients in the community (Gillis et al., 1986).

In the absence of data from other provinces, it is difficult to draw further conclusions regarding patterns of readmission in other provinces. Nevertheless, the findings for

Northern Cape do provide some data for the formulation of norms (see below). There is a need to develop this measure as part of routine information gathering in other provinces, particularly for the purpose of assessing the progress of proposed deinstitutionalisation.

5.2.10 Default rates

Responses to the questionnaire indicated a national default rate of 11% (provincial range: 6-21%).

The results of this study indicate low default rates relative to both international and local findings. Studies of default in psychiatric outpatient settings report that 20-60% (Nicholson, 1994), or in other reports 26-50% (Chen, 1991) of psychiatric patients fail to attend their first outpatient appointments in the USA. Between 20% and 57% (Cohen et al., 1995), or in other reports, 9-40% (Chen, 1991) fail to attend after the first visit. Between 31% and 56% (Cohen et al., 1995), or in other reports, 30-60% (Chen, 1991) fail to attend after the fourth visit.

A previous study of mental health services in the Free State appears to fall broadly within the parameters of international research, and shows higher levels of default than reported in the current study (Freeman et al., 1994).

Possible explanations for the low default rates reported in this study focus on poor data quality. From qualitative observations of the data, the chief problem appeared to be reporting the number of patients on local registers as attenders, rather than the actual number of patients who attended services during the month. During the provincial visits it emerged that registers are updated on a regular basis in most provincial services. It is therefore likely that patients on registers will represent a more stable population who consistently make use of services, and are less likely to default. From qualitative observations, it appears that in some instances, actual attendance is not recorded. As with other findings for this study, this highlights the limitations of current indicators and information systems in mental health care in South Africa.

There is also less variability in default rate between provinces than was evident in other service ratios. However, poor data quality limits discussion on factors that may have influenced this apparent trend.

Aside from methodological limitations, this study demonstrates the need to plan services that account for defaulters. It has been argued that unless it can be demonstrated that outpatient treatment dropouts have high re-hospitalisation rates, or other adverse sequelae, attempts to re-engage dropout patients should be left to clinical judgement and not adopted as policy (Sparr et al., 1993). For some patients with enduring SPC it is likely that defaults will lead to rehospitalisation, but this is not true for all SPC patients, such as those defaulting from follow-up appointments after crisis admissions to acute facilities. Therefore policy around defaults should be adapted to these needs. As argued by Sparr et al., (1993), some level of default should be catered for, without regarding it as inappropriately costly or a risk factor. Studies that cost re-admissions and examine factors associated with default would be useful to give substance to these claims and inform clinical policy on default.

In conclusion, the study of default rate highlights two important issues. First, the complexities of attempting to monitor default rates and plan services for the relatively diverse group of people with SPC. Chiefly, in this instance, the tensions between predicted course, treatment and behaviour of patients with chronic conditions compared to those with acute conditions. Second, the problems of recording defaults for mental health services within integrated general health services. These include the limitations of mental health information systems, and the problems of recording defaults when accurate data on patient attendance, bookings and defaults are not available. There is a clear need to develop information systems for mental health services in South Africa, in order to address these issues.

5.2.11 Service indicators: conclusions

General conclusions from the results of the national survey of service indicators show that mental health services in South Africa are generally under-resourced in relation to most developed countries and some developing countries. There is marked variation in resource levels and service utilisation between provinces. Provinces such as Gauteng and the Western Cape appear to be better resourced than other provinces, but

this apparent finding masks the evidence that the better resourced urban provinces frequently provide services to poorer neighbouring rural provinces.

There is also substantial evidence that much mental health care continues to be centralised in large psychiatric institutions. There is little evidence of the development of community mental health services. Before psychiatric institutions can be downscaled, in keeping with current policies and international trends (Department of Health, 1997; Thornicroft et al., 1999), it is essential to develop adequate community-based care. Evidence from the international literature shows that failure to develop community-based care invariably means that patients who require inpatient care become homeless or contribute to the already over-burdened prison population (Birmingham, 1999; Lamb, 1998).

There is some evidence of unmet need for mental health services, with low levels of community service utilisation corresponding with low hospital admission rates. This indicates the importance of planning services according to need, to address those areas where needs are not being met. The precise nature of the present unmet need requires further research.

The results also indicate the need to develop information systems for mental health services in South Africa. This is important in the light of several identifiable areas where the data reported in this study appear to be inaccurate. There is a particular need to develop ways of monitoring mental health care in the context of integrated general health services, e.g., the number of full-time equivalent mental health staff working in primary health care settings. This is important in the context of policy proposals to downscale psychiatric institutions. Information systems are an essential tool for monitoring this process and ensuring that service targets are achieved.

The results of this study demonstrate that service indicators are inextricably linked. For example, in provinces with higher acute bed/population ratios (such as Gauteng and the Western Cape), admission rates were higher, at least partially because the facilities are available to admit patients. It is clear from the findings of this study that whether certain indicators (for example, bed numbers) are considered to be adequate depends on a range of other indicators, including staff/population ratios, staff/bed

ratios, bed occupancy rates, average length of stay, readmission rates, default rates and community/hospital ratios.

5.3 Model

The model developed by this study has produced a set of recommendations for mental health service utilisation rates, bed numbers and staff to care for people with severe psychiatric conditions in a local South African population of 100 000 people. To summarise, at 100% coverage, these are 87 daily patient visits (DPV); 28 acute and 10 medium-long stay beds; and 35.2 full-time equivalent (FTE) mental health staff (including 25.1 nurses, 0.6 OTs, 1.9 OTAs, 2.2 social workers, 1.2 clinical psychologists, 1.55 psychiatrists, 1.95 registrars, 0.5 educational and information officers, and 0.2 quality assurance officers).

The utilisation rates, bed numbers and staffing figures proposed by this model are marginally lower than those proposed by the WHO model (WHO, 1996b). Discrepancies arise from different age distributions; different methods of calculating ambulatory care attendances and staff ratios at ambulatory care level; less emphasis on care by "specialist" staff such as psychiatrists and psychologists, given integrated health care policy in South Africa; and more emphasis on the provision of rehabilitation staff (including OTAs) in South African mental health services. The differences highlight the way in which assumptions affect the results of any such modelling process.

The pattern and level of existing services in South Africa, as reported by the service indicators, are different to those recommended by this model. There are presently fewer acute beds (13 (provincial range: 6-18) per 100 000) than those recommended by the model. However, there are considerably more long stay beds (35 (range: 0-83) per 100 000) with gross maldistribution of resources between provinces. The model proposes a shift away from an institutionally based custodial pattern of care, to community-based care. This implies an emphasis on the short-term treatment of patients in inpatient settings and the concerted management of patients in the community.

There are currently a total of 19.5 FTE (range: 11.3-31.5) mental health clinical staff in South Africa per 100 000 population. There are 15.6 nurses, 0.4 OTs, 0.5 OTAs, 0.5 social workers, 0.3 psychologists, 0.4 psychiatrists, 0.4 registrars (residents) and 0.4 MOs per 100 000 population. Compared to existing staffing levels, the model proposes higher staffing levels, with the total of 35.2 FTE mental health staff. It also proposes a change in the emphasis of care towards the development of community-based, rehabilitative staff. In doing so it highlights the inadequacies of present staffing and stresses the importance of human resource planning according to the need for care.

This model contains certain strengths, when compared to previous models in the literature. Firstly, although estimations of resource requirements on the basis of epidemiological data have been attempted before in international settings (Andrews, 1991; WHO, 1996b), such a model has not been attempted on this basis for South Africa. This model is therefore the first such model to estimate mental health service resource requirements in South Africa.

Secondly, some attempts have been undertaken to produce service resource estimates in South Africa, specifically for mental health service requirements for primary health care (Rispel et al., 1996) and hospitals (Monitor Company, 1996). However, these models do so on the basis of existing service utilisation data, and not epidemiological (need-based) data (Rispel et al., 1996). Furthermore, the assumptions of some of these approaches are inappropriate for current mental health policies. For example, psychiatric hospital bed needs were grouped with needs for tuberculosis under "chronic care" (Monitor Company, 1996), a failure to apply the evidence for the most effective and humane inpatient care. As indicated in chapter 2, current evidence shows that the most effective care is delivered through the brief management of patients in acute hospital settings, and concerted community-based care and rehabilitation. This model has been developed on the basis of this approach.

Thirdly, this model carries specific advantages in its flexibility, with possible adjustments to a range of variables, including: population size; age distribution; prevalence; levels of coverage; attendances at ambulatory care facilities; ambulatory care utilisation rates; length of consultation; ambulatory care workloads; beds (acute

and medium-long stay); staff (inpatient and ambulatory care); lengths of stay; admission rates; and bed occupancy rates. This allows for the adaptation of the model to a range of different planning situations. It also allows for the model to be developed for future planning, when resources or service assumptions change.

Fourthly, the model is transparent in the sense that it makes explicit the assumptions upon which calculations are made. Furthermore, the rationale for adopting those assumptions is set out, in keeping with current evidence for the most effective mental health care. Attempts to use norms for service planning in the past have been criticised for not making the assumptions and methodology for calculating those norms explicit (Green, 1999).

Fifthly, the model is applicable to the planning of both community and hospital-based care. Previous South African models have separated these aspects (Monitor Company, 1996; Rispel et al., 1996). As the review of the literature has shown, community and hospital-based care are inextricably linked in mental health care planning (Thornicroft et al., 1999). A model that embraces both of these aspects therefore allows for a holistic approach to service planning and the calculation of the mental health needs of a given population.

Sixth, and finally, the model carries advantages in its specificity. Because of the range of variables involved in the modelling and their adaptability, it is possible to plan for specific needs e.g., the number of Occupational Therapy Assistants required in a local area community mental health service. This is an important improvement on past attempts to develop need norms in general health care, which have been criticised for their lack of flexibility and their inability to cater for the specific needs of local populations (Power, 1992).

The model developed in this study therefore provides a potentially valuable planning and management tool, both for calculating resource needs, and for lobbying for better service provision through a conceptualisation of the service needs of patients. At minimum the model allows for a more rational approach to decision-making than has previously occurred and makes the assumptions on which services are planned more

explicit. As noted earlier, the model is set out in spreadsheet format in Appendix E and in a diskette that accompanies this thesis.

5.4 Norms

5.4.1 Bed/population norms

The proposed bed/population norms are: 19 total beds per 100 000 population (including 13 acute, 3 medium-long stay and 3 community residential beds) at baseline level; and 58 total beds per 100 000 population (including 28 acute, 10 medium-long stay and 20 community residential beds) at target level.

The proposed total bed/population target norm only exceeds the current national total by 10 beds per 100 000 population. What is therefore emphasised by these norms is not so much a large-scale national increase in inpatient bed resources, as a redistribution of current resources, in keeping with the goals of improved equity and the development of community-based care (Department of Health, 1997).

The proposed norms for acute, medium-long stay and community residential care facilities are presented in a holistic fashion. For example, the target acute bed/population ratio of 28 is conceptualised as depending on the 20 community residential beds, in order to provide an effective service for a local population of 100 000 people. It is therefore inappropriate to take a single figure from the proposed bed/population norms (e.g., medium-long stay beds) and use it as a means of rationalising the downscaling of services. Indeed, some of the participants in the provincial workshops expressed concerns that specific norms recommendations might be taken out of context and used to rationalise the downscaling of mental health services by provincial health administrations. It is therefore essential that a holistic perspective be maintained.

The norms also recommend the development of community-based residential care facilities in South Africa. However, experience in developed countries has shown that considerable infrastructure is needed to develop community-based accommodation (not to mention ambulatory care) for psychiatric patients (Fioritti et al., 1997; Haug et al., 1999). As this infrastructure is not generally in place in South Africa, it may be

necessary to sustain the use of hospital facilities in the short term. This could be accompanied by a gradual reduction of medium-long stay beds over time, until adequate community infrastructure is developed for community residential care.

The proposals have various implications, not least because of the different levels and distribution of beds across different provinces. For example, the proposed baseline norm for medium-long stay beds is extremely low relative to most provinces' levels of care. However, as stated in chapter 3, the goal of baseline norms is not to reduce all provinces to a lowest common denominator, but to encourage realistic service development in under-provided provinces (most notably Mpumalanga and North West).

Table 5.1 demonstrates the recommended norms in relation to current provincial distribution of services. In the table, 'Provincial Group 1' represents the two provinces with the highest number of beds per population (Gauteng and Northern Province). 'Provincial Group 2' represents the two provinces with the lowest number of beds per population (Mpumalanga and North West). For 'Provincial Group 1', the mean divided by the proposed baseline and target norms is greater than 1, except for the proposed target norm for acute beds. This indicates that the number of acute beds must be increased and the number of medium-long stay beds decreased to achieve the proposed target norms. For 'Provincial Group 2', on the other hand, the mean divided by the norm is less than 1, except for the baseline norm for medium-long stay beds. This indicates the need for development of acute beds to achieve baseline norms. It also indicates that, for these provinces, increases in both acute and medium-long stay beds will be necessary to achieve the proposed target norms.

Table 5.1 Bed population norms per 100 000: comparing provincial challenges

Bed type	All provinces	Provincial Group 1*			Provincial Group 2*		
		Mean	Mean ÷ Norm		Mean	Mean ÷ Norm	
			Baseline	Target		Baseline	Target
Acute Beds	13	22	1.69	0.79	6.5	0.50	0.23
Medium / Long Stay Beds	35	71	23.7	7.1	4.5	1.5	0.45
Total	48	93	4.9	1.93	11	3.7	0.39

* See text

5.4.1.1 Bed/population norms: conclusions

- Some provinces are not meeting the baseline recommendations. This reflects a problem of inequity between different regions in South Africa. A first task is to develop these provinces to meet baseline recommendations.

- All provinces fall short of meeting the target recommendation for acute beds, which is considered of special importance in current South African mental health policy. In many of these provinces, target levels for acute beds could be achieved by shifting some of the current long stay beds to acute care. Acute beds are unequally distributed nationally, leaving the provinces with the least beds still well below the proposed baseline norm.

- Most provinces currently have enough long stay beds. Most beds are currently in institutionalised settings. The challenge over time is to move these beds to community-based residential settings, and shift the model of care toward rehabilitation and away from custodial practices. A short to medium term step may be to convert hospitalised wards to 'rehabilitation

centres'. It is essential that community-based residential care facilities fill the gap of proposed reductions in long stay bed numbers.

- Some provinces fall significantly higher than the target norms for medium-long stay beds. These provinces are characterised by the presence of large custodial institutions. Given the social and functional damage of such long-term care, and the current lack of data on these patients, further research is required to understand the minimal community care requirements for the discharge of these patients. In so saying, these results recommend a gradual and considered decrease in long stay beds in these provinces, driven by the pace of development of community support services.

5.4.2 Staff/population norms

The proposed staff/population norms are: 20.7 total full-time equivalent (FTE) staff per 100 000 population at baseline level; and 35.2 total FTE staff per 100 000 population at target level. A detailed breakdown of the recommendations for each profession is provided in chapter 4.

The staff/population norm proposals provide a guideline for baseline and target human resource levels for the care of people with severe psychiatric conditions. The proposed norms are an attempt to redress the shortfall in current staffing resources, within current affordability constraints. This is done firstly through baseline levels of staffing, which are motivated by the goal of national equity within South Africa. Secondly, target levels describe a possible pattern of staffing which would cover estimations of service need for people with severe psychiatric conditions, based on the proposals of the model.

These are broad recommendations for staffing per 100 000 population, which need to be adapted to specific local service needs. The need for adaptation to the realities of provincial services emerges clearly when comparing the norms to existing staff ratios. Table 5.2 provides an indication of existing service ratios relative to the norms proposals, and the varying challenges that are presented to the provinces. For those provinces where the existing ratio divided by the baseline norm is less than 1

(Mpumalanga, North West, Free State, Northern Cape, Eastern Cape and KwaZulu-Natal), the priority is to develop staff numbers towards the baseline norm. These provinces have depleted staffing resources, relative to the national ratios.

For those provinces where the existing ratio divided by the baseline norm is greater than 1 (Gauteng, Northern Province and Western Cape), the priority is to develop staff numbers towards the target norm. As noted earlier, in discussion of provincial service indicators, the staff/population ratios for the Northern Province may be inflated by inaccurate reporting. The realities of mental health staffing may be lower than those reported, and service targets may need to be adjusted accordingly.

Table 5.2 Provincial challenges: staff/population norms

Province	Existing totals	Baseline	Target	Existing ÷ baseline	Existing ÷ target
Gauteng	26.2	20.7	35.2	1.3	0.7
N. Province	31.5	20.7	35.2	1.5	0.9
Mpumalanga	11.3	20.7	35.2	0.6	0.3
North West	14.2	20.7	35.2	0.7	0.4
Free State	13.1	20.7	35.2	0.6	0.4
N. Cape	5.7	20.7	35.2	0.3	0.2
E. Cape	14.7	20.7	35.2	0.7	0.4
W. Cape	24.7	20.7	35.2	1.2	0.7
KwaZulu-Natal	15.8	20.7	35.2	0.8	0.5

In addition to these challenges, there is a need for some flexibility in the way in which provincial services respond to the proposed norms. In particular, provinces need to adapt these recommendations according to their own needs and the historical distribution of staff disciplines within the province. Provinces need to adapt the staff/population norms according to the specific needs of rural or urban areas. Staff numbers also need to be adapted according to functional units within existing service organisation structures.

In some cases there may be a need for staff substitution, a practice that has received support in other general health settings (Saltman & Figueras, 1997). Saltman and Figueras (1997) have defined substitution as "the continual regrouping of resources across and within care settings, to exploit the best and least costly solutions in the face of changing needs and demands" (p214). For example, certain provinces, such as Northern Province, Northern Cape, North West, Mpumalanga and the Eastern Cape are considerably under-resourced with regard to psychiatrists and registrars. In the case of provinces that do not have academic institutions, it may be necessary for medical officers to make up for shortfalls in registrars. Where recruitment and financial resources limit the acquisition of psychiatrists, registrars and medical officers, greater service and management responsibility needs to be given to existing staff, particularly nursing staff. It is important that standards of care are not compromised in this process. As mentioned in section 5.3.2, above, there is an urgent need for the development of policy and legislation that deals with the issue of prescription privileges, and the legal responsibility of nurses who prescribe.

In addition, the norms emphasise psychosocial rehabilitation, in keeping with the recommendations of provincial coordinators and current policy (Department of Health, 1997). The development of psychosocial rehabilitation services would be facilitated by increased recruitment and training of OTs, OTAs and community rehabilitation workers (or community health workers). It needs to be stressed that in recommending the development of rehabilitation staff in ambulatory care, this does not assume that rehabilitation is only conducted by traditionally designated rehabilitation staff, such as OTs. Psychosocial rehabilitation is an integral component of mental health care, and should be the task of all mental health staff.

In terms of the distribution of staff between community and hospital services, this issue is discussed in more detail in community/hospital, staff/bed and staff/patient norms.

5.4.2.1 Staff/population norms: conclusions

The proposed staff/population norms provide broad recommendations that need to be adapted to the specific needs of provincial services. These

proposals can be interpreted according to the needs of particular provinces as follows:

- Provinces need to adapt staff distribution across different professions according to their own histories and needs.
- Broad recommendations of staff/population norms need to be interpreted in relation to functional units.
- The proposals need to be adapted to the specifics of workload and skill mix of staff, making use of substitution, where appropriate.
- The proposals should also be interpreted in relation to recommendations for staff/bed and staff/patient ratios, as well as distribution across community and hospital services.

5.4.3 Staff/bed norms

The proposed staff/bed norm is 0.36 at baseline level and 0.56 at target level. This translates to approximately one staff member for every three beds at baseline level and one for every two beds at target level. As noted in chapter 4, a breakdown according to acute and medium-long stay facilities was only available for target norms. This was 0.6 and 0.43, respectively.

For nurses, the proposed norms are 0.25 at baseline level and 0.45 at target level (acute: 0.5, medium-long: 0.3). As noted for the nurse/bed ratios for existing services in South Africa (section 5.3.3), these recommendations are still low relative to the existing nurse/bed ratios in developed countries. For example, psychiatric hospitals in the UK, have reported a 1:1 nurse to bed ratio (excluding managers and tutors) for both learning disability and psychiatric hospitals (Department of Health and Social Security (DHSS), 1988).

The proposed staff/bed norms provide relatively conservative estimates of inpatient staffing needs, largely because of the evidence from the provincial workshops that provincial budgets would not be able to fund higher levels at this stage. They should not be taken to indicate that staff/bed ratios should be maintained at this level. Rather

they are designed to reinforce the policy that if staff levels are to be increased, this should occur in concert with increases in community psychiatric services. In most provinces, therefore, the emphasis is not on increasing staff/bed ratios, but developing staff in community-based services. There are exceptions to this rule, notably Mpumalanga and North West, where psychiatric hospital care is completely inadequate, and the development of inpatient staffing in these sectors is a matter of urgent necessity.

In terms of the distribution of staff, as with staff/population ratios, there should be sufficient flexibility to allow provinces to prioritise particular staff categories, where this is appropriate, given their particular historical distribution.

There are particular instances where these staff/bed norms need to be interpreted with caution:

- The proposals in this study are for clinical staff only. As mentioned earlier, several provinces have generated staff/bed norms for total staff, including administrative, cleaning and maintenance staff. Clearly that methodology is aimed at calculating the total cost of a particular facility. Because the focus of this research is on the needs for clinical staff, these proposals should be adjusted to include provincial estimates of the need for support staff on staff establishments.

- Staffing proposals do not include staffing of community-based residential care facilities, because of the limitations of the model. However, these could be included in the total staffing requirements by planning the types of staff who would be required in such facilities, and generating staff/bed ratios. This is clearly an area of future research.

- In the case of staff who fulfil both an inpatient and an ambulatory care function, it remains important to ensure that the FTE staff number is available for inpatient care. For example a psychiatrist, who spends 75% of his/her time on the ward and 25% in outpatient clinics, should not be regarded as one psychiatrist for inpatient purposes, but as 0.75 of a FTE inpatient psychiatrist.

The remaining 25% would need to be covered by another psychiatrist, registrar or medical officer, depending on the particular function.

5.4.3.1 Staff/bed norms: conclusions

Existing staff/bed ratios are clearly well below levels of care reported in international literature. The proposed norms offer some preliminary attempts at highlighting this and emphasise the need to develop inpatient staffing, particularly in those provinces that have low levels of inpatient care.

5.4.4 Staff/patient norms

The proposed staff/DPV norms are 0.32 at baseline level and 0.93 at target level. For nurses the proposed norms are 0.2 at baseline level and 0.54 at target level. This translates to approximately one nurse for every five daily patient visits at baseline level and one nurse for every two daily patient visits at target level.

It needs to be emphasised that these ratios include all staff working in ambulatory care settings. The duties of these staff may include administration, supervision, managerial responsibilities, and planning, in addition to their clinical responsibilities. It is therefore likely that, for example, on-duty staff would see more than two patients per day at target level. As noted in chapter 2, the precise number of patients seen per day in ambulatory care settings will vary, depending on the nature of the clinical contact, the staff profession, and the service setting (Goldman et al., 1994; Morrison, 1998). With current information systems limited as they are, more precise norms proposals are not possible at this stage in South African mental health services.

The community/hospital ratios for staff in existing services have shown that staffing in ambulatory care is severely under-resourced in all provinces in South Africa. There is an urgent need for the development of community-based staff who are accessible to local communities and not based in central psychiatric institutions. In the majority of provinces (excluding those with extremely low levels of hospital care) the development of ambulatory care staff, based in the community, is an urgent priority.

These norms proposals are an attempt to draw attention to this shortfall and set targets for the development of staff in ambulatory care settings. As with other norms, the baseline norms are directed at those provinces that fall below the national mean and are recommended with the goal of developing national equity. Target staff/DPV norms are based on an estimation of the need for staff in ambulatory settings, relative to anticipated patient service utilisation and are specifically directed at those provinces that have staff/DPV ratios above the national mean.

As with staff/population and staff/bed ratios, the precise details of staff development in specific provinces need to be left to the discretion of those provinces, based on their specific budget constraints, historical organisation, skill mix and available human resources.

While the staff/patient norm has its uses, care needs to be taken in interpreting the proposals. As noted in the findings for service indicators, this is partly because the ratio relies on information which present community services are not able to provide accurately. Both the numerator (staff in ambulatory care settings) and the denominator (the number of daily patient visits) have been shown to be inaccurately recorded in some provinces.

In addition, staff/DPV ratios are complex and informed by a range of factors. These factors are likely to change with shifts in policy and treatment practices of patients with SPC. Some of the changes may lead to increases in reported patient visits. These changes include increased detection of patients, improved information systems and increased referral rates from primary to specialist services. Other changes may lead to increased reporting of staff numbers in ambulatory settings. These include training of new staff, training of existing primary care staff in mental health care, and more accurate reporting of FTE mental health staff numbers. These factors need to be monitored closely, alongside staff/DPV ratios, in order to develop more sophisticated ways of monitoring ambulatory services in the community.

5.4.4.1 Staff/patient norms: conclusions

The following conclusions can be drawn from the development of staff/DPV norms:

- The staff/DPV norms are an attempt to draw attention to the inadequacy of current community mental health staffing, and set targets for future development.

- The development of staff/DPV norms has highlighted the problem of information gathering in community mental health services, particularly in the context of mental health services that are integrated with general health care.

- For this reason, it is important that other indicators of ambulatory services (for both staff and patients) are developed, in order to monitor changes. The staff/DPV ratio is clearly a first attempt at tracking the relationship between staff and patients in ambulatory services. Further developments are now called for. Within the present set of norms, staff/DPV ratios need to be related to the community/hospital ratios for staff, which provide information on the relative distribution of staff across community and hospital services.

5.4.5 Community/hospital norms

5.4.5.1 Staff

For staff, according to one definition of "community" and "hospital", the proposed baseline community/hospital norms are 25% for those provinces with low levels of community staffing (Gauteng, Free State, Northern Cape, Eastern Cape, Western Cape and KwaZulu-Natal), and 55% for those provinces with high levels of community staffing (Northern Province, Mpumalanga and North West). For this definition, the proposed target norm was 40%. This implies that as a target, 40% of mental health staff should be based in community settings in South Africa.

There are two major implications of these community/hospital norm proposals. Firstly, there is a need for increased numbers of staff for in-patients in Mpumalanga, North West and Northern Province. This would comprise an aspect of the development of in-patient facilities in these provinces.

Development of these staff resources would help to improve access to inpatient psychiatric care for patients with severe psychiatric conditions in these provinces.

Secondly, there is a need for provinces with relatively well established hospital services such as the Western Cape, Eastern Cape and KwaZulu-Natal to involve their hospital-based staff in the support and training of community-based staff, particularly those at PHC level. PHC staff in rural areas are particularly in need of such support and training. This would increase the number of patients who could be managed at PHC level, thus reducing the proportion that are referred for admission to central psychiatric institutions. This would in turn decrease the demand for staffing in hospital settings.

5.4.5.2 Patients

The proposed community/hospital norms for patients are 66% at baseline level and 92% at target level. This implies that at target level, 92% of patient contacts with mental health services should be in the form of outpatient contacts and only 8% in the form of hospital admissions.

The current situation indicates that on average 66% of patient contacts with mental health services in provinces take the form of outpatient contacts. The baseline norms are proposed to enable those provinces (particularly KwaZulu-Natal, Western Cape, Gauteng and Northern Province) that fall below the baseline norms, and therefore have an over-emphasis on the utilisation of hospital services, to develop community service utilisation by patients. The target level is proposed to provide an indication of the extent to which community services could be used, based on estimates of the need for mental health services.

The target proposals are also more consistent with *prima facie* assumptions about the nature of admissions and outpatient contacts, noted earlier. Hospital admissions are generally longer in duration and more expensive than outpatient contacts. One might therefore assume that in a well-functioning, community-based mental health service, outpatient contacts would far

outnumber inpatient admissions. By setting a target norm of 92% community/hospital ratios for patients, these proposals encourage the development of community-based care and a reduction in hospital-based care. This is an attempt to draw mental health services away from the legacy of institutionally based care.

The proposals for community/hospital norms may need to be adjusted as proposals are implemented to reduce institutionally based care and develop community-based services. Additionally, the community/hospital norms proposals for staff and patient utilization carry implications for staff/bed and staff/DPV ratios. As shifts in service patterns occur, particularly during proposals to develop community-based care and reduce hospital bed numbers, it is important that these norms are kept in view, and adjusted accordingly, where appropriate.

5.4.6 Bed occupancy norms

The proposed baseline bed occupancy norms are 83% (for acute and medium-long stay facilities). The proposed target norms are 85% for acute facilities and 95% for medium-long stay facilities.

The proposed bed occupancy norms are broadly consistent with the recommendations of the provincial coordinators (who recommended baseline occupancy of between 70% and 90%, and target occupancy of between 80% and 100%). The proposals are also consistent with the international literature that motivates for the optimal usage of available beds, while maintaining workloads for staff within acceptable limits (Powell et al., 1995). The proposed target bed occupancy norms are based directly on the recommendations of the WHO model (WHO, 1996b).

The proposed norms offer varying challenges for specific provinces, once again. For provinces with high bed occupancy levels, particularly Mpumalanga, there is an urgent need to develop appropriate psychiatric inpatient facilities to reduce the burden on existing beds and provide more clinically effective, humane care. For provinces with low occupancy rates, particularly Northern Cape and Northern Province, there is

a need to make more efficient use of existing resources. These norms provide guidelines for both of these scenarios.

Some provinces, such as Gauteng, Western Cape and KwaZulu-Natal appear to be maintaining near-optimal occupancy (although there may be variation between specific facilities). The challenge for these provinces is to maintain these bed occupancy rates during planned deinstitutionalisation and the development of community-based care.

Unfortunately, the current data sources did not allow for more specific bed occupancy norms according to specific facilities e.g., district hospitals or specialist psychiatric units. In terms of the future development of this norm, there is a need to develop more specific bed occupancy norms for different levels of care, from district hospitals, to dedicated psychiatric institutions, with specifications according to different kinds of facilities (acute, medium-long stay and forensic services). As note in chapter 3, the use of bed occupancy rates in the context of integrated services, particularly in district hospitals, is complex. In particular, a method needs to be developed by provincial health information systems for monitoring psychiatric bed occupancy in district hospitals.

5.4.7 Admission rate norms

The proposed admission rate norms are 150 (baseline) and 180 (target) annual admissions per 100 000 population.

As with other norms, the implications of these proposals need to be adapted to the realities of provincial services. For those provinces with admission rates below the baseline norm (notably Northern Province, Mpumalanga, North West, Free State, Northern Cape, Eastern Cape and KwaZulu-Natal), the challenge is to reduce long stay facilities and increase the detection and treatment of patients in acute inpatient facilities. Increased detection and treatment in acute facilities implies that patients will be admitted more frequently for shorter periods than under the current arrangements. As noted in discussion of existing admission rates, these provinces have admission rates well below those in many developed countries, which appears to indicate that the need for inpatient services in these provincial populations is not

being met. It is likely that high bed occupancy rates in provinces like Mpumalanga further contribute to low admission rates, through the inability of services to admit patients.

If proposals are implemented to change patterns of care from long-term custodial institutions to community-based care with brief admissions to acute facilities, it seems likely that admissions in provinces with lower admission rates will rise towards the proposed norms. Factors which may be associated with increased admission rates in future include increased detection of psychiatric problems by primary health services, with increased referrals to inpatient facilities; reductions in lengths of stay; an increased number of acute beds; and a decreased number of long-stay beds. It is essential that admission rates continue to be monitored in these services, in order to ensure that the optimal admission rates are attained, while keeping other indicators in view.

For those provinces with relatively well-established services, namely Gauteng and Western Cape, there is clear evidence that patients are being admitted from surrounding provinces (see section 5.2.1). It therefore seems likely that admission rates in these provinces are inflated relative to the actual population needs within the province. With proposed developments in mental health services in neighbouring provinces, it is hoped that admission rates in these provinces will drop towards target levels. The development of community-based services in these provinces would further assist with this and reduce the burden on hospital facilities.

5.4.8 Length of admission norms (Average Length of Stay: ALOS)

At baseline level, the proposed length of admission norms in days are: 14 (acute psychiatric hospitals), 14 (acute psychiatric wards in general hospitals), 5 (acute general wards in hospitals), and 3 (acute wards in district hospitals). At target level, the proposed length of admission norms in days are: 19 (acute psychiatric hospitals), 180 (medium-long stay psychiatric hospitals), 19 (acute psychiatric wards in general hospitals), 8 (acute general wards in hospitals), and 5 (acute wards in district hospitals).

Findings for existing lengths of admission in this study indicate that South African mental health services continue to be marked by patterns of long-term custodial care. The proposed norms are an attempt to change this pattern by emphasising the need for shorter periods of admission and concerted community-based care, in keeping with current policy (Department of Health, 1997).

There is considerable diversity in lengths of admission across the country, according to different levels and quality of inpatient care as well as particular admission and discharge policies. The proposed norms therefore need to be applied according to the specific realities of provincial services. For acute inpatient admissions, most provinces reported lengths of admission that were not dissimilar to the proposed norms. As with other norms, baseline norms are not intended to be used as a reason for reducing services that fall above these levels. For example, it would be contrary to these proposals to reduce lengths of admission in district hospitals in Mpumalanga because the ALOS falls above the baseline level for district hospitals.

For provinces with long-stay psychiatric facilities, there is a significant challenge to reduce lengths of admission and develop community-based residential facilities where patients can be housed more appropriately. This challenge needs to be taken on by provincial services according to their specific circumstances. As stated in discussion of existing length of admission (section 5.2.8) several provinces reported the presence of a cohort of patients who have remained in custodial care for many years and are thoroughly institutionalised. Each province needs to take responsibility for implementing these changes in the most humane, clinically sound and cost-effective manner. There is an urgent need for further research into humane and clinically sound criteria for discharging chronically institutionalised patients.

5.4.9 Readmission rate norms

At baseline level, the proposed readmission rate norms are 15% within 1 month, 35% within 6 months, and 40% within 1 year. At target level, the proposed readmission rate norms are 10% within 1 month, 25% within 6 months, and 30% within 1 year.

As noted in chapter 4, the lack of provincial data for readmission rates (with the exception of West End hospital in the Northern Cape), the absence of

recommendations from provincial coordinators and the lack of recommendations from the model, implies that this norm carries less validity than other norms.

Nevertheless, this norm is useful in three important respects. Firstly, it is based on data from the international literature (Kastrup, 1987; Kates, 1987; Postrado et al., 1995) and on data from previous South African research (Gillis et al., 1986). It therefore does carry some validity within the available evidence for readmission rates. For example, readmission rates of between 11% and 20% within 1 month have been reported (Fisher et al., 1992; Swett, 1995), consistent with the proposed baseline norms (of 15%). Similarly, previous reports of readmission rates within 1 year of 36.5% in a Cape Town psychiatric hospital (Gillis et al., 1986) fall within the baseline readmission rate norm (of 40%).

Secondly, the monitoring of readmission rates has been shown to be an important measure of efficient and clinically effective use of scarce mental health resources during deinstitutionalisation in several countries (Kastrup, 1987; Kates, 1987; Geller, 1992). It is therefore an important measure for proposed deinstitutionalisation in South Africa. The literature provides stark warnings of the costly consequences of proceeding too rapidly with a programme of deinstitutionalisation, as shown in revolving door patterns of care (Geller, 1992). Readmission rates and guidelines for these rates are important checks in the process of deinstitutionalisation and the monitoring of the adequacy of both community and hospital services. The proposal of norms to guide this process, based on the evidence from the literature, is a useful way of further ensuring that services are delivered efficiently and effectively.

Thirdly, the difficulty of reporting current readmission rates in South Africa and developing norms for this study are important findings in themselves. If services are to be monitored during proposed deinstitutionalisation, there is an urgent need to develop mental health information systems to a point where regular information on rates of readmission can be monitored. This study's limited proposals for readmission rate norms are diagnostic of the level of information available about mental health service delivery in South Africa. This is an area for future research and development.

5.4.10 Default rate norms

The proposed default rate norms are 11% (baseline) and 8% (target). The baseline is derived from the national mean default rate. As noted in chapter 4, the model did not generate default rates, and the target norm was therefore based on the recommendations of provincial coordinators; the understanding that improved service efficiency should lead to a reduction in default rates and therefore that the target rate should be lower than the baseline rate; and acknowledgement from the literature that some level of default is inevitable for patients with severe psychiatric conditions (Sparr et al., 1993).

As indicated in discussion of existing default rates, it seems likely that existing default is under-reported and that actual default rates are higher. This is particularly so when comparing the reported default rates with findings in both the international and South African literature. It therefore seems likely that the proposed default rate norms will need to be adjusted as default rates are reported with more accuracy in the future.

The default rate norms may be less valid than other norms, because of the possible inaccuracy of the service indicators on which they are based. Nevertheless, there are important conclusions that can be drawn from the process of developing these norms. Chiefly, there is a need to develop information systems to monitor default rate accurately, and optimise the efficient and effective use of scarce mental health resources in South Africa. Norms for default rate are a useful way of setting targets for this process and encouraging provincial services to both monitor default and improve the rate of default. This is particularly important in instances where mental health services are integrated within general health care. There is a danger in these instances that the needs of patients with severe psychiatric conditions are neglected because the rate at which they default from general outpatient clinics is not monitored. This is more likely to occur in situations where patients are not adequately managed in the community and booking systems for clinic attendances are not in place.

Creative solutions are needed to address these issues, if default rate norms are to be developed and implemented in mental health care in South Africa. As a starting point, it is necessary to establish an awareness of default as an important indicator of

the process of mental health care in ambulatory care services. Later developments may include more sophisticated information systems, which allow for the monitoring of patients with severe psychiatric conditions within general health services. As with some other norms, the development of the default rate norm highlights the inadequacies of present systems of information gathering in mental health services in South Africa, and the usefulness of setting targets for default rates to maximise service efficiency and effectiveness.

5.4.11 Norms: conclusions

The norms proposals presented in this study express mental health service needs in terms of quantifiable service resource and utilisation levels. In doing so, this study makes explicit what is frequently hidden in mental health service literature, namely the assumptions and values on which planning is based. The norms methodology is therefore a way of making mental health service planning transparent and accountable. Because it is transparent, the methodology must draw on the best available evidence, and so combines different approaches to resource allocation. These include epidemiological approaches (in the model); a review of current supply (from the indicators of current resources); a review of current demand (from the indicators of current service utilisation); and consultation (through the provincial workshops). By then identifying specific service levels as normative, it is able to set out specific targets for service development.

In order to take account of specific local needs, national norms need to be flexible. This can be achieved by two means. First, by linking the system of norms to district, regional and provincial information systems. Information systems should facilitate the development and monitoring of indicators, which in turn inform norms. In order to ensure that norms are delivered in a timely manner, it is essential that accurate and appropriate information is gathered and reviewed on a regular basis. For example, by obtaining regular information on hospital admission rates, it is possible to monitor the delicate balance between hospital and community services, including the support of people with severe psychiatric conditions in the community.

Second, setting more than a single norm level assists the planning of service targets according to specific local needs. Baseline levels describe a minimum level of care

below which services would be considered unacceptable. Target levels describe a level of care that the services can aim to achieve over time, to cover the mental health needs of people with severe psychiatric conditions. This allows provinces to adapt the norms proposals according to their specific circumstances.

It is essential that recommendations for norms be made within the boundaries of affordability. The tender document for the present project did not require costing of norms recommendations. However, the human resources implications of the norms are calculated, as are bed numbers. It is hoped that provincial managers and the national mental health directorate are able to interpret the financial implications of these recommendations.

It needs to be stressed that the norms proposals are linked and that individual norms recommendations (for example for staff/bed ratios) cannot be interpreted in isolation. The proposed total staff required to serve a population of 100 000 is equal to the staff required to cover the proposed number of hospital and community-based beds, plus the staff required to fulfil ambulatory care needs at the specified staff/DPV ratio, plus managerial staff. Thus changes in staffing ratios (such as the staff/bed ratio or staff/DPV ratio) as well as changes in particular bed norms (or other norms such as bed occupancy, admission rate or length of stay) need take account of the consequences for other norms.

In addition, it is essential that individual norms are not interpreted in isolation. Norms should be located in relation to broader issues such as quality of care, budgetary constraints, referral procedures, pathways to care, and the skill level and experience of staff. It is essential that each norm is understood as only a piece in the complex and varied picture of mental health services.

5.5 Manual

The manual set out in Appendix F provides a practical aid to assist local mental health service planners and managers to implement the norms methodology in order to plan public sector mental health services in South Africa. This approach has been adopted by the WHO, in its attempts to provide technical assistance to countries in the planning and delivery of mental health services (WHO, 2001b).

5.6 Summary: contributions of this study

The findings of this study provide several contributions to the knowledge of mental health services in South Africa.

5.6.1 New data

Firstly, data is provided which has not previously been available. This includes data on current national and provincial mental health service resources (including bed/population ratios, staff/population ratios, staff/bed ratios and community/hospital ratios for staff distribution) as well as data on national and provincial mental health service processes (including community/hospital ratios for service utilisation, bed occupancy, admission rates, length of admission, readmission rates and default rates). The only national data which has been previously available (Lee et al., 1997) did not include these process indicators, and included services for people with learning disabilities in its reports of mental health service resources. This limits the specific planning that is required for people with severe psychiatric conditions. In addition to the national data, only limited provincial service data has been available until now. Apart from the study by Lee and Zwi (1997), previous studies have reported data from specific provinces, namely Western Cape (Ensink et al., 1997) and Free State (Freeman et al., 1999a; Freeman et al., 1999b; Lee et al., 1999a; Lee et al., 1999b). Different methodologies were used for each province and data was gathered at different times, making interprovincial comparisons difficult.

Until now this data has not been available for several reasons. (1) Under apartheid, national data for mental health services for the entire population was not reported. Services were fragmented according to racial categories and further sub-divided into former homelands and so-called independent states, preventing a comprehensive overview of services. (2) Information systems had not been developed to report this data on a routine basis within services. (3) Apart from routine service information systems, no previous research had been conducted to report this data during the apartheid era. (4) In the post-apartheid era, the new provincial boundaries established under the ANC government also meant that data had not been reported systematically according to this new delineation. During this study it was necessary to visit

provincial services in order to establish collateral data, confirm the accuracy of the data reported in the posted questionnaires, and collect qualitative data on current service conditions.

The data reported in this study is therefore important, both because it is new data and because it is presented on a scale, with a consistency of methodology which has not been previously undertaken. This data facilitates national and provincial level planning in a manner that was not previously possible. This is particularly important, given the historical location of this study. The data provides an opportunity to take stock of current mental health services in the aftermath of apartheid and plan for more equitable and clinically appropriate care in the future.

5.6.2 A model for estimating mental health service needs in South Africa

Secondly, this study has developed a model for estimating mental health service needs in South Africa. This model has adapted previous international research (Andrews, 1991; WHO, 1996b) according to specific demographic characteristics and service conditions in South Africa. Previous attempts to undertake this task in South Africa have been limited in terms of scope (Rispel et al., 1996) or perceptions of mental health needs (Monitor Company, 1996). The key features of the new model include:

(1) its flexibility, with possible adjustments to a range of variables;
(2) its transparency, with clear statements of the assumptions on which the model is based and the rationale for using those assumptions, in keeping with current evidence;
(3) its applicability to the planning of both community and hospital-based care; and
(4) its specificity, e.g., its ability to be used for the planning of specific staff disciplines in specific settings.

5.6.3 Mental health service norms

Thirdly, this study has provided both a set of norms proposals, and a method for developing norms for mental health services. These norms incorporate several facets of planning, taking into account existing service resources, existing service demand, the opinions of key stakeholders and estimations of the need for mental health

services (from the model). This is founded on the understanding that service planning should proceed rationally, and needs to take into account the interests and needs of a range of stakeholders. For this reason, the consultation process for the development of norms was extensive.

The norms also address the difficult question of needing to establish guidelines that are flexible and can address the diversity of resource levels in current provincial service provision in South Africa. This was addressed by developing two sets of norms, each calculated according to different methodologies: baseline norms (based on the existing national service indicators, with the goal of establishing national equity); and target norms (based on the estimation of service need from the model, with the goal of meeting mental health needs). This provided an opportunity to set targets and plan according to the specific realities of provincial services, by grounding norms in current service indicators, and therefore providing financially realistic service targets. This is the first time that a rational, transparent approach has been used to plan mental health services in South Africa. This rational, transparent approach has also seldom been attempted internationally, although international research has encouraged it (WHO, 1996b; WHO, 2001b).

5.6.4 Planning tools

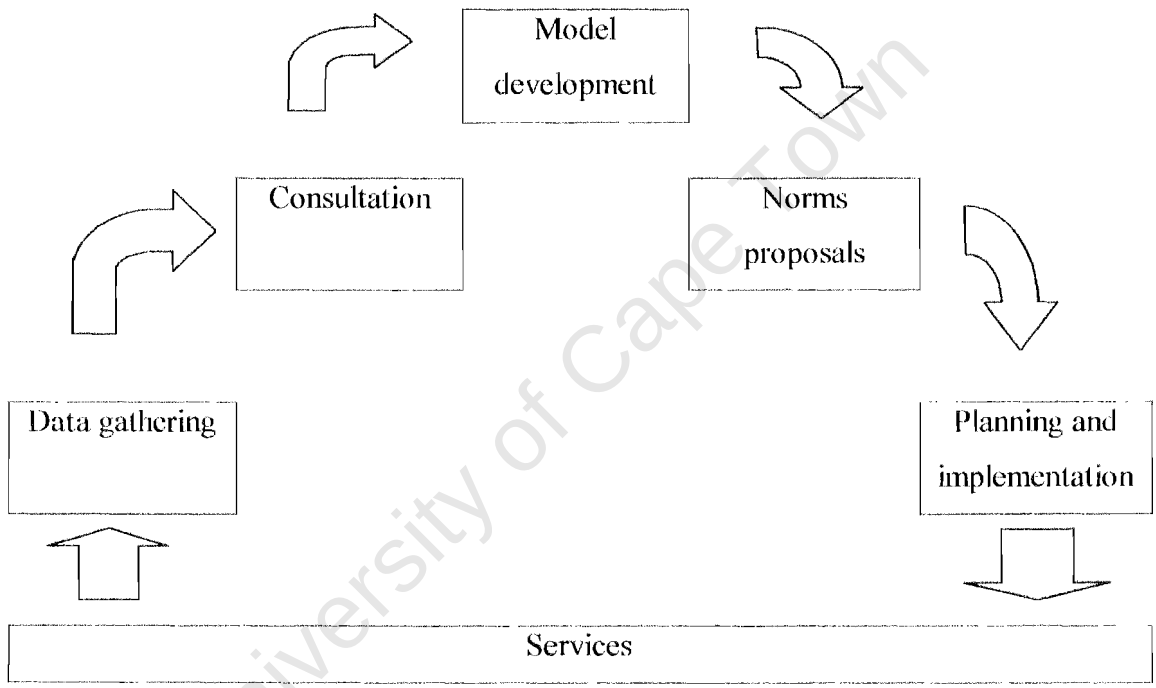
Fourthly, this research has generated data that is practically useful for mental health service planners at national, provincial and district level. This has been done by developing a manual for mental health service planning, which uses the norms methodology developed by the study. Most doctoral work does not attempt this, and much research cannot be used for direct service planning or health improvement. This research has been undertaken with the belief that implementation of research findings is a key contribution of research undertakings.

5.6.5 A comprehensive and consistent methodology

Fifthly and finally, this research makes a unique contribution by its comprehensiveness and the consistency of its methodology. Starting with data collection from existing services, a model was then developed to estimate the mental health service needs of a South African population. Using the existing service data, the model and a process of consultation, a set of mental health service norms was then

proposed. These norms were then developed to provide specific guidelines for provincial and district level planning (Figure 5.1). This study has therefore reported previously unreported data, developed a set of proposals for levels of service provision, and developed a method for planning for services based on principles of rationality, transparency, equity and consultation with relevant stakeholders. This is the first time that a comprehensive approach has been developed for planning services, using a consistent methodology and set of service assumptions throughout.

Figure 5.1 The process of norms development and implementation



5.7 Limitations

This study has several limitations, which need to be acknowledged. In the following section the limitations of the service indicators, model, norms and manual are outlined.

Before these are discussed, several general limitations of the study need to be noted. Firstly, the systematic literature search for this study was confined to a review of publications in peer review journals. Although unpublished work such as conference proceedings and unpublished reports were referred to, a systematic search was not

conducted for these sources. The literature review is therefore limited by this methodology.

Secondly, for reasons stated in chapter 3, this study did not include a range of mental health problems, including learning disabilities, substance misuse, less severe psychiatric conditions, and services specifically for children, adolescents and the elderly. The study is therefore limited by the narrowness of this focus.

Thirdly, the private sector was excluded from this study for the reasons stated in chapter 3. Although it was argued that the vast majority of the service needs of people with severe psychiatric conditions are provided within the public sector, the private sector does provide some level of care. The extent of this cover was not explored, a further general limitation of this study.

5.7.1 Limitations: Service indicators

5.7.11.1 Absence of outcome indicators

The service indicators reported in this study are limited by their focus on input and process indicators, to the exclusion of outcome indicators (measures of the changes in functioning, morbidity and mortality among those to whom the service is delivered (Thornicroft et al., 1999)). Although the reasons for adopting this approach have been outlined in chapter 2, this does not imply that outcomes can be overlooked. Indeed improved outcomes can be understood to be the purpose of a mental health service. The planning of appropriate resources and levels of service utilisation therefore needs to be informed by the effect of services on patient outcomes. The absence of outcome data in this study is therefore a major limitation.

5.7.11.2 Limitations of the questionnaire

Limitations of the questionnaire have been discussed in relation to the particular indicators where there were shortcomings. Additionally there are other possible general limitations. Firstly, although an attempt was made to define all the terms used in the questionnaire, for some provincial coordinators it appeared to be difficult to complete all items in the questionnaire. It was clear that some of the questionnaire items requested information that was not

regularly gathered, and therefore was beyond the reach of some provinces. This was exemplified in the request for readmission rates and default rates. When the questionnaire was designed, greater familiarity with existing information systems, or the lack of them, may have led to more realistic requests. Secondly, the questionnaire was lengthy and this may have been an obstacle to its completion, or at least delayed completion in certain instances.

5.7.11.3 Data quality

Another methodological limitation of the study is the quality of the data. Despite efforts to explain the terms used in the questionnaire, maintain contact with provincial coordinators during the data gathering process and visit the provinces, there were still several inaccuracies in the data that were reported. As mentioned, this should not be interpreted as an indictment of the provincial coordinators, but more a reflection of the limitations of current information systems. Much of the data is not routinely gathered at provincial level within public sector mental health services. In addition to the difficulty of accessing the information, there was therefore a lack of uniformity between provinces in the way in which data was reported. For example, in the case of staffing figures, it was not always possible for managers to report the numbers of Full-Time Equivalent (FTE) general health workers rendering a psychiatric service within an integrated context. There may also have been data missing from particular health districts. This was particularly true for information regarding outpatient attendances and defaults, as well as information about average length of stay in general hospitals. These limitations draw attention to the difficulties of gathering information specific to mental health within integrated general health services.

5.7.11.4 Inter-provincial comparisons versus intra-provincial data

Much of the discussion of the findings for this study has focused on comparisons between provinces. This discussion may have masked the realities that there may be considerable inequities and resource distribution problems within provinces. For example, an earlier study of mental health services in the Western Cape has noted that access to services may be as

limited in rural areas of the Western Cape as in rural areas of surrounding provinces (Ensink et al., 1997).

5.7.2 Limitations: Model

Caution should be exercised in interpreting the recommendations of the model. First, the calculation of service needs is not an exact science, and the conclusions it reaches are highly dependent on the assumptions upon which the model is based. These assumptions need to be clearly stated and justified. Where appropriate, alternative scenarios could be explored. Second, in addition to the available resources, the nature of the service is highly dependent on the quality of service delivery. To this end, a clear set of service standards should accompany the recommendations of any modelling process. Third, the credibility and possible implementation of these recommendations must be informed by consultation with service providers, service users, professional bodies and provincial service management.

In addition to considerations regarding the application of this model, there are also several limitations implicit within its methodology. Firstly, epidemiological data was used from the National Comorbidity Survey in the USA (Kessler et al., 1994b). Although the rationale for using this data has been explained in chapter 3, it is clear that South African epidemiological data would be preferable, in order to estimate the needs of a South African population. When such data does become available, it needs to be substituted for the American data used for this study.

Secondly, there is clear evidence from the literature that needs for mental health services are affected by the location of the population in urban or rural settings (Canino et al., 1987; Jenkins, 2001), the level of social deprivation (Harvey et al., 1996; Glover et al., 1999; Koegel et al., 1999; Kovess et al., 1999) and the extent of existing services (McCrone et al., 2001). Unfortunately none of these variables were included in the current model. This was because this model attempted to develop a national estimate, which, by definition, could not account for local variability according to rural-urban setting, social deprivation or existing services (which varied substantially between provinces). A more specific and sophisticated model needs to be developed in future, which includes specific local data to allow for planning according to specific local variables.

Thirdly, this model focuses on the needs of a specific patient population, i.e., those with severe psychiatric conditions. In order to apply to a wider patient population, the definition of the target population could be expanded. Alternatively, the model could be adapted to focus on other specific patient populations, e.g., numbers who might attend primary health care services for common mental disorders, or children and adolescents. When calculating the service needs of less severe conditions, such as common mental disorders, incidence may be a more accurate measure of need than prevalence.

Fourthly, as noted in the literature review, prevalence data can provide an over-estimation of service need and has been poorly correlated with service utilisation or demand (Regier et al., 1984; Andrews, 2000). It is therefore important to note that the resource levels generated by this model may well provide an over-estimate of service need and may be poorly correlated with resources required for current service utilisation or demand. This is confirmed by the findings of the service indicators in this study, which report service utilisation and resources well below the estimates of utilisation and resources generated by the model. In the application of the conclusions of this model to specific norms and targets, several considerations therefore need to remain in view. These include (1) the need to consult with all relevant stakeholders (including service providers, service users, managers and policy makers) in the identification of appropriate priorities for service development; and (2) the adjustment of the service targets generated by the model according to the financial realities of the particular local or provincial service.

5.7.3 Limitations: Norms

The discussion of each individual norm has shown the difficulties inherent in norms development, and some potential problems in their implementation. As noted in chapter 2, some writers have argued that nationally developed norms are not appropriate for health care in South Africa. It has been suggested that:

- centrally developed need norms do not take into account the specific needs of local health care (Power, 1992);

- norms cannot be delivered in a timely manner (Power, 1992);
- norms run the danger of being idealistic and recommending levels of care which are beyond the financial resources of the present health care system (Monitor Company, 1996); and
- norms do not in themselves guarantee acceptable levels of care because of the complexity of mental health services - for example an acceptable bed/population ratio provides no guarantee that inpatient care is adequate.

These arguments have been countered in the discussion of norms as an approach to mental health service planning (Chapter 2). The norms approach has been adopted in this thesis because of the specific historical and political circumstances of planning mental health services in South Africa. Nevertheless, the warnings of Power (1992) and the Hospital Strategy Project (Monitor Company, 1996) introduce a healthy hesitancy in blithely applying norms to service planning in future. The methodology that has been developed in this research is intended to be flexible, and as such, should be adapted to the changing circumstances of mental health care. The particular norms (for example for staffing or beds) are not intended to be applied in a blanket fashion, or taken out of context, without consideration for other service indicators, in particular the quality of care and service outcomes.

In addition to these concerns, the following specific areas reflect the limitations of this study.

5.7.3.1 Methodology for calculating norms

In the multi-modal approach to setting norms in this study, it is impossible to provide the weighting of each contribution to the norm. In several instances, opinions informed such weightings, and these opinions could not always be quantified. For these reasons, the recommendations for norms in this study should be regarded as preliminary. They require consideration and modification before they can begin to influence policy and resource allocation.

5.7.3.2 Consultation

This study involved a great deal of consultation with key stakeholders, given the short amount of time that was available for the project. However, if additional time had been available, the scope of the consultation process could have been extended. Professional organisations, for example, could have made more substantial contributions to the process of developing recommendations for norms. International colleagues could have been more centrally involved. There could have been wider consultation with service users regarding their utilisation of services, and their experience of the process of mental health care. Finally, there was not sufficient time to obtain feedback on the recommended norms by provincial managers, service providers, experts and professional bodies.

5.7.3.3 Input and process norms

As with the service indicators, the emphasis of the present set of norms is largely on input and process norms, and the study is therefore limited in this sense. Future studies of norms would do well to explore outcome measures. Several authors have stressed the importance of outcome measures (Jenkins, 1990; Parry, 1994; Tansella et al., 2001). Although there is no precedent in the literature for setting "outcome norms", target outcomes have been used for service development. In the UK, for example, the Department of Health (Department of Health, 1993) has proposed national outcomes targets in these terms, such as target suicide rates. South African mental health services would be greatly assisted by the development of realistic target outcomes in future.

In addition, the emphasis on input and process norms has not taken account of the substantial evidence in the literature that in spite of relatively inadequate mental health service resources, developing countries consistently show better outcomes for patients with schizophrenia than developed countries (Warner, 1994). This is clearly an area for further research in South Africa, where attempts could be made to identify those factors that are associated with improved outcomes for schizophrenia.

5.7.3.4 Financial planning

Financial planning has not been explicitly addressed in this study. Several South African studies have used affordability as a key component of the rationale for health service guidelines (Monitor Company, 1996; Rispel et al., 1996). The issue of the cost of mental health services remains central to mental health service planning in other settings (Knapp et al., 1994; Shah & Jenkins, 2000; McCrone & Weich, 2001). Financial indicators (e.g., cost per patient day) have not been used in this study. Such indicators are of considerable use when budgetary constraints continue to inform mental health planning. Future research projects in this area need to fill this gap.

5.7.3.5 Cultural issues

No specific attempt has been made in this research to address the complex issues of culture and mental health service planning in South Africa. This is because this issue was not required by the terms of the tender for this study and it was considered beyond the scope of this thesis. It is clear that there is potential for further exploration of these issues (Swartz, 1985; Lund et al., 1998; Swartz, 1998). Of note are cultural factors that mediate the perceived need for mental health services as developed in the model. It has been shown that cultural factors do impact on service utilisation (Vega et al., 1999). Further research is needed to identify these factors, and the impact they might have on the ways in which mental health care (which has largely developed within a western cultural milieu) is perceived and utilised in a South African context.

5.7.3.6 Context of norms

There is a danger with norms recommendations that the numbers that are generated can be interpreted out of context and used in ways that are destructive to mental health services. Attempts have been made to stress the essential interdependence of each individual norm on the other norms. Also, the implications of a norm depend on standards of care and the reality of existing services and patients' needs. It cannot be sufficiently emphasised that the norms have very limited utility in the absence of a thorough understanding of the context in which they are developed. This includes qualitative data, such as local service history, provincial health policies, outcome measures, the

opinions and morale of staff and the perceptions of mental health services in local communities.

5.7.3.7 Implications for reduction in services

Although this study makes recommendations for national norms, such norms represent a minimum level of service delivery (at baseline or target level). Certain provinces may exceed such levels, which does not imply that there is overprovision of services. Indeed, the results of this study have shown that mental health services in South Africa are as a rule grossly under-resourced. Thus, existing ratios above the recommended norms do not imply that services should be cut. If they were used as such, this would run contrary to the intention of this project, whose goal is the development of mental health services (within the constraints of fiscal realities).

5.7.4 Limitations: Manual

Many of the limitations of other aspects of this study are contained implicitly within the norms manual. In addition, the manual is limited by its need to provide specific, and at times over-simplified recommendations of the complexities of mental health service planning. This limitation implies that instruments such as planning manuals should be critically reviewed on a regular basis, in order to maintain their grounding in evidence-based practice and planning.

5.8 Areas for further research and service development

The limitations of this study lead logically to a discussion of areas for further research and service development. Areas of further work will be discussed in relation to service indicators, the model, norms and the manual.

5.2.1 Areas for further research and service development: Service indicators

5.8.1.1 Outcome indicators

The development of outcome indicators is an important area of future research in South African mental health services. Examples of outcome indicators that could be included in future research efforts include: patient satisfaction (Williams, 1994; Balogh, Simpson, & Bond, 1995; Bjorkman, Hansson,

Svensson, & Berglund, 1995); suicide and unemployment rates; symptom reduction following service contact; extent of dependence in accommodation and vocational programmes (Rapp, Gowdy, Sullivan, & Wintersteen, 1988); quality of life (WHOQOL Group, 1998), and social and functional independence (Smith, Manderscheid, Flynn, & Steinwachs, 1997).

Research in this area could fall broadly under two categories. Firstly, "direct" studies could be conducted of patient outcomes. Secondly, "indirect" studies could be conducted of information systems within current public sector services, and the ways in which outcome data are or could be regularly gathered, as an integrated aspect of health service delivery.

5.8.1.2 Intra-provincial data

As this was a national study, much of the discussion has focused on comparisons of mental health services between provinces. As noted, the limitation of this study has been that this may have obscured important data within provinces. This is clearly an area of further research. Areas which might merit exploration include a comparison of district levels of mental health service resources and utilisation, the accessibility of services within provinces, and the development of other indicators, particularly outcome indicators for provincial and district services.

5.2.2 Areas for further research and service development: Model

An important area of further research for modelling of mental health service resources in South Africa is the costing of those resources. The WHO is in the process of developing guidelines for this task, through a document that combines mental health service planning and budgeting (WHO, 2001b). Models that cost different programmes of mental health service provision have been developed. For example, McCrone et al. (1999) have developed a model using a 4-step approach: (1) identification of mentally ill sub-populations, (2) attachment of service utilisation profiles to each user group, (3) costing of service utilisation profiles, and (4) costing different models of mental health service provision (McCrone, Chisholm, & Bould, 1999).

A second area of further research for modelling is the calculation of community-based residential care resources, which were not included in this model.

More broadly, there is a need for accurate epidemiological data in South Africa, to provide measures of the need for mental health services in this country. A national study of mental needs and disorders is reported to be under way and results are pending (Thom, 2000).

In addition to the need for epidemiological data, there is potential for methodological development of the model. Specifically, the literature has demonstrated the limitations of using prevalence data as a proxy for need, particularly when demand for services is poorly correlated with need estimations (Kelly et al., 1995; Andrews, 2000). Further research could therefore be conducted into ways of adapting need estimates to more accurate patterns of service utilisation. Alternative methods could be explored for measuring need, apart from epidemiological prevalence or incidence. Methods could also be developed for identifying service targets on the basis of a variety of data sources, including current supply, demand and need estimates.

5.2.3 Areas for further research and service development: Norms

5.8.3.1 Implementation and evaluation of norms

The most immediate logical step from the conclusion of this study is the implementation of the norms proposals and evaluation of that implementation. Areas for further research could embrace two related aspects here. Firstly, provinces could be assessed in terms of their attainment of the service goals provided by the norms. This might include exploration of the reasons for either achieving or failing to achieve service targets. In particular, good practice examples could be highlighted to draw attention to service achievements. These could provide potential solutions and incentives to services in other provinces.

Secondly, the process of adopting the norms could be evaluated. This might include the way in which norms were perceived by provincial service planners and clinicians, their validity, areas of misunderstanding, limitations of the

norms and the extent to which provincial services were able to adapt and apply the norms proposals and methodology to their specific service needs.

Throughout the implementation and evaluation it would be useful to retain the same spreadsheets and service calculations, to allow for comparison with service levels at earlier times.

This implementation and evaluation may be affected by subsequent changes in service organisation and information gathering. For example, the integration of mental health services into general health care at primary level may make it difficult to isolate indicators specific to mental health, such as numbers of full-time equivalent mental health staff, and numbers of patients with severe psychiatric conditions who attend outpatient services. The development of methods for monitoring and planning for mental health services within an integrated general health service is therefore an important area for future research.

5.8.3.2 Incorporation of financial planning

During the implementation of norms it would be extremely valuable to incorporate aspects of financial planning. This might include costing of the current norms proposals, and adjustment of service targets according to budget realities. Future development of norms could then include financial planning as an implicit aspect of the modelling and resource calculations. For example, specific proposals for bed/population and staff/population norms could be costed. The conclusions of the model for the mental health needs of a local population could also be costed.

More broadly, financial planning could be developed as an integrated part of future mental health service planning. Further assistance and training for provincial coordinators, to allow them to manage and negotiate service budgets, would be a useful aspect of future service development.

5.8.3.3 Service organisation

Another area of potentially valuable research would be the organisation of mental health services in provinces. This might include the positioning of mental health coordinators within provincial organograms and the limitations this places on service development. Several provincial coordinators commented that they might have responsibility for primary care services, but have no authority over the planning of hospital services within the province. Clearly this scenario hampers the holistic planning of mental health care. An exploration of the history and political organisation of mental health services is therefore an important area of research, which may allow more effective and efficient planning.

As part of the organisation of services, managerial aspects of service planning and delivery are an important area of future service development and research. This could include study of existing managerial practices, recommendations for improved managerial practices and training of managers.

Wider aspects of service organisation at a clinical level are further areas of potential research. This might include pathways to care, referrals between primary, secondary and tertiary services, clinical policy regarding admission and discharge, and liaison with other sector services such as social services, criminal justice, religious organisations and traditional healers.

5.8.3.4 Information systems

The limitations of current information systems in South African mental health services have been amply demonstrated in this study. It has also been stressed that the successful implementation of the proposed norms depends, to a large extent, on accurate and appropriate information systems. The development of mental health information systems is therefore an important area of service development and research. Research could explore recommendations for the most appropriate indicators, which can be realistically gathered on a regular basis. The standardisation of these across provincial services would greatly assist future national research and service development.

5.8.3.5 Quality of care

The norms in this study were developed alongside a set of service standards, which set out the first national South African guidelines for the quality of care (Flisher et al., 1998). This study was conceptualised as being inextricably linked with the assessment and improvement of the quality of mental health care. The further development of quality improvement measures and the implementation of those measures are therefore important areas for further research and service development.

5.8.3.6 Inclusion of groups excluded from this study

Future norms development could include planning for the service needs of groups excluded by the current study. This includes people with less severe psychiatric conditions (otherwise known as "common mental disorders"), learning disabilities, substance misuse, and services for children and adolescents and the elderly.

5.8.3.7 Planning for prevention and mental health promotion

There is also potential to plan for services for prevention and mental health promotion. This area is an essential aspect of mental health service provision and has been repeatedly emphasised as an area for development, both in South African policy (Department of Health, 1997) and in international research (Thornicroft et al., 1999; WHO, 2001c). The resource implications, likely utilisation and costs of these services could be planned using a similar methodology of reviewing existing activities and resources, consulting with key stakeholders, modelling scenarios according to need estimations, and developing norms or guidelines for service targets.

5.8.3.8 Private sector provision

It was made clear in this study (chapter 3) that the majority of the service needs of people with severe psychiatric conditions are provided within public sector services. However, private sector provision is an important aspect of mental health care in South Africa, particularly for less severe disorders. Some research into this area has been conducted in the Western Cape (Ensink et al., 1997). There is clearly room for more extensive national research into

private sector provision, and the possible areas of partnership that could be formed with public sector services. This is particularly important in the area of human resources and training, where the private sector can appear more attractive to clinicians because of greater financial rewards and perceived flexibility (Green, 1999).

5.8.3.9 International developments

Review of the literature has indicated that the development of norms for mental health service planning has not been attempted in other developing countries. This has been confirmed in the development of the WHO mental health service guidance package for policy and service delivery (WHO, 2001b). There is therefore potential for further research into the development of norms for mental health service planning, according to the specific needs and circumstances of other countries.

5.8.3.10 Outcome norms

The development of norms should ultimately be focussed on effective outcomes for patients (Jenkins, 1990; Tansella et al., 2001). Although the present study limits itself to input and process norms, future studies need to take on the matter of recommending acceptable outcome targets for mental health services in South Africa. These might include targets for successful treatment, targets for improvements in quality of life, reductions in suicide rates and reductions in disability.

5.8.4 Areas for further research and service development: Manual

There are several areas of potential research and development for the norms manual. Firstly, local planners and managers could be consulted regarding the usefulness of the norms manual, as well as areas for further development. Secondly, the development of financial planning and budgeting, outlined above, could be included in future editions of the norms manual. This would further enable the integration of financial planning into planning and implementation of the service targets. Thirdly, the norms manual could be adapted to new data on service indicators and needs for mental health care in local communities. Subsequent developments of service

indicators, modelling and norms could then be implemented through practical user-friendly planning tools such as a manual for service planning.

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Appendix A. Questionnaire

NORMS FOR THE MENTAL HEALTH CARE OF PATIENTS WITH SEVERE PSYCHIATRIC CONDITIONS (SPC)

PROVINCIAL SERVICES QUESTIONNAIRE

PROVINCE:_____

Please complete all aspects of this questionnaire and return it by fax by 31 March 1998 to:

UCT Department of Psychiatry
(Attention: Crick Lund)
Fax: (021) 448-8158

INSTRUCTIONS FOR COMPLETION

- Please read through before completing.
- Attach and use additional sheets where necessary.
- Please retain a copy of the completed questionnaire for later discussion purposes during our provincial visits.
- On the basis of the data you provide, we will calculate ratios (such as bed/population and staff/population ratios). During our visit to your province, we will ask you for your recommendations of norms for each of these ratios. In the interim, please examine the figures you have reported with a view to making your recommendations.
- Do not hesitate to contact us if you have any questions. We appreciate your assistance and would like to help in any way we can. ☎ (021) 406-6565. E-mail: clund@ray.uct.ac.za

A. SOURCES

1.	Person providing information:	
2.	Position:	
3.	Date:	

B. TERMS AND POINTS OF CLARIFICATION

1. This study is only concerned with state funded or state subsidised services. This includes Life Care facilities.

2. Types of inpatient facility are defined according to length of admission as follows:
   - Acute and Emergency facilities: Admission length: 0-3 months
   - Long stay facilities: Admission length: longer than 3 months

3. In order to define beds accurately, it is necessary to distinguish between "official bed capacity", "current beds", and "occupied beds".
   - "Official bed capacity" refers to the total capacity of a hospital if adequate funding was available.
   - Because of budget cuts many hospitals only have a certain percentage of this total capacity available for inpatient care - what might be termed "current" or "available" beds.
   - "Occupied beds" refer to the number of beds which are actually filled by patients.

   This study is primarily concerned with "current" or "available" beds, not "official bed capacity". The reporting of "official bed capacity" would give an inflated picture of the actual number of available beds.

4. Ambulatory care services are defined to include:
   - Primary Health Care (PHC) settings, including clinics and Community Health Centres (CHCs) or day hospitals
   - Hospital outpatient (OPD) settings, including those in district, regional or secondary, tertiary and dedicated psychiatric hospitals

5. This study uses the term Full-Time Equivalent (FTE) staff in calculating the distribution between inpatient and outpatient settings in hospitals. FTE staff represent the number of full-time personnel required to staff a particular service. For example if one outpatient clinic requires the presence of one full-time psychiatrist, but the position is rotated between several actual psychiatrists, then the clinic is staffed by one FTE psychiatrist.

6. Patients whose diagnosis is only one of mental handicap are excluded from this study. Patients who are both mentally handicapped and have a psychiatric condition are included. In other words, the diagnosis of a psychiatric condition is a primary criterion for inclusion in this study.

7. When reporting posts, please report only filled active posts.

HOSPITAL PROFILE

Instructions: The following tables outline services used by mentally ill patients in your province. Please complete the following tables as it will allow us to calculate the data we require to understand services, staffing, and patients in your province. Photocopy these sheets and use additional sheets as necessary. (Note that these tables exclude mentally handicapped patients.)

1. Dedicated Psychiatric Hospitals

The following three tables cover hospitals in your province which are dedicated to the care of psychiatric patients. Please complete the following information about each dedicated psychiatric hospital in your province. The first table below (Table 1.1) requires data about the hospital and patients. The second and third table below (Tables 1.2a and 1.2b) require data about the staff at each of these hospitals. Note that you may have to contact the superintendent at these hospitals to gather some of the data required.

Table 1.1: Psychiatric Hospitals: Hospital and Patient Statistics

	Hospital Overview			Admission / Discharge		Inpatient Bed Profile					Outpatient Profile	
Name of Hospital	Location	Public or Lifecare?	Urban? Peri-Urban? Rural?	Number of Inpatient Admissions Last Year (1997)	Number of Inpatient Discharges Last Year (1997)	Total Number of available Inpatient Beds	Average Number of Occupied Beds per Month during 1997	Number of Acute / Emergency Beds[1]	Number of Long Stay Beds[2]	Average Length of Stay for Inpatients in days	Average Number of Outpatients Seen per Day	Average Number of Patients who fail to keep appointments in a month
1)												
2)												
3)												
4)												
5)												

continue on attached pages as needed....

[1] Beds which are used for patients who are admitted for less than 3 months
[2] Beds which are used for patients who are admitted for more than 3 months

Staffing statistics

Some staff may work in both inpatient and outpatient settings. In these instances, please report the Full-Time Equivalent (FTE) staff in each setting.

Table 1.2a: Psychiatric Hospitals: Inpatient Staffing Statistics

	Inpatient Staffing Profile (numbers)															
Name of Hospital	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's or Community rehab workers	Social Workers	Community Health Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharm-acist	Pharmacy Assistant	Other (specify)	Other (specify)
1)																
2)																
3)																
4)																
5)																

continue on attached pages as needed....

Table 1.2b: Psychiatric Hospitals: Outpatient Staffing Statistics

	Outpatient Staffing Profile (numbers)															
Name of Hospital	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's or Community rehab workers	Social Workers	Community Health Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharm-acist	Pharmacy Assistant	Other (specify)	Other (specify)
1)																
2)																
3)																
4)																
5)																

continue on attached pages as needed....

2. General Hospitals

The following three tables cover general hospitals in your province. This includes both secondary and tertiary general hospitals. Please complete the following information about each general hospital in your province. The first table below (Table 2.1) requires data about the hospital and patients. The second and third tables below (Tables 2.2a and 2.2b) require data about the staff at each of these hospitals. Note that you may have to contact the superintendent at these hospitals to gather some of the data required.

Table 2.1: General Hospitals: Hospital and Psychiatric Patient Statistics[3]

	Hospital Overview			Admission / Discharge		Ward Profile	Inpatient Bed Profile					Outpatient Profile	
Name of Hospital	Location	Secondary or Tertiary?	Urban? Peri-Urban? Rural?	Number of Inpatient Admissions Last Year (1997)	Number of Inpatient Discharges Last Year (1997)	Number of dedicated psychiatric wards[4] (if any)	Number of dedicated inpatient psychiatric beds	Average Number of Occupied Psychiatric Beds Beds per Month	Number of Acute / Emergency Beds[5]	Number of Long Stay Beds[6]	Average Length of Stay for Inpatients	Average Number of Outpatients Seen per Month	Average Number of Patients who fail to keep appointments in a month
1)													
2)													
3)													
4)													
5)													
6)													

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[3] All references to patients in this table are to psychiatric patients.
[4] Please write the number of wards in the hospital which are dedicated to psychiatric patients. Write '0' if there are no dedicated wards.
[5] Beds which are used for patients who are admitted for 3 months or less.
[6] Beds which are used for patients who are admitted for more than 3 months.

Staffing statistics

Some staff may work in both inpatient and outpatient settings. In these instances, please report the Full-Time Equivalent (FTE) staff in each setting.

Table 2.2a: General Hospitals: Inpatient Staffing Statistics

	Inpatient Staffing Profile (numbers)															
Name of Hospital	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's or Community rehab workers	Social Workers	Community Health Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharm-acist	Pharmacy Assistant	Other (specify)	Other (specify)
1)																
2)																
3)																
4)																
5)																
6)																

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Table 2.2b: General Hospitals: Outpatient Staffing Statistics

	Outpatient Staffing Profile (numbers)															
Name of Hospital	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's or Community rehab workers	Social Workers	Community Health Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharm-acist	Pharmacy Assistant	Other (specify)	Other (specify)
1)																
2)																
3)																
4)																
5)																
6)																

continue on attached pages as needed....

3. District Hospitals

The following three tables cover district hospitals in your province. Please complete the following information about each district hospital in your province. The first table below (Table 3.1) requires data about the hospital and patients. The second and third tables below (Tables 3.2a and 3.2b) require data about the staff at each of these hospitals. Note that you may have to contact the superintendent at these hospitals to gather some of the data required.

Table 3.1: District Hospitals: Hospital and Psychiatric Patient Statistics[7]

	Hospital Overview			Admission / Discharge		Ward Profile	Inpatient Bed Profile					Outpatient Profile	
Name of Hospital	Location	Secondary or Tertiary?	Urban? Peri-Urban? Rural?	Number of Inpatient Admissions Last Year (1997)	Number of Inpatient Discharges Last Year (1997)	Number of dedicated psychiatric wards[8] (if any)	Number of dedicated inpatient psychiatric beds	Average Number of Occupied Psychiatric Beds Beds per Month	Number of Acute / Emergency Beds[9]	Number of Long Stay Beds[10]	Average Length of Stay for Inpatients	Average Number of Outpatients Seen per Month	Average Number of Patients who fail to keep appointments in a month
1)													
2)													
3)													
4)													
5)													
6)													

continue on attached pages as needed....

[7] All references to patients in this table are to psychiatric patients.
[8] Please write the number of wards in the hospital which are dedicated to psychiatric patients. Write '0' if there are no dedicated wards.
[9] Include beds used for patients who are admitted for less than three months.
[10] Include beds used for patients who are admitted for more than three months.

Staffing statistics

Some staff may work in both inpatient and outpatient settings. In these instances, please report the Full-Time Equivalent (FTE) staff in each setting.

Table 3.2a: District Hospitals: Inpatient Staffing Statistics

	Inpatient Staffing Profile (numbers)															
Name of Hospital	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's or Community rehab workers	Social Workers	Community Health Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharm-acist	Pharmacy Assistant	Other (specify)	Other (specify)
1)																
2)																
3)																
4)																
5)																
6)																

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Table 3.2b: District Hospitals: Outpatient Staffing Statistics

	Outpatient Staffing Profile (numbers)															
Name of Hospital	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's or Community rehab workers	Social Workers	Community Health Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharm-acist	Pharmacy Assistant	Other (specify)	Other (specify)
1)																
2)																
3)																
4)																
5)																
6)																

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4. Primary Health Clinics and Community Health Centres (CHCs)

The following two tables are dedicated to primary health clinics in your province. This includes clinics, community health centres (CHCs) and mobile clinics. Please complete the following information about each clinic/CHC in your province. The first table below (Table 4.1) requires data about the clinic and the patients it serves. The second table below (Table 4.2) requires data about the staff at each of these clinics. Note that you may have to contact these clinics to gather some of the data required.

Table 4.1: Clinics and CHCs: Psychiatric Patient Statistics[11]

	Clinic/CHC Overview		Outpatient Profile	
Name of Clinic/CHC	Location	Urban? Peri-Urban? Rural?	Average Number of Outpatient Attendances per Month	Average Number of Patients who fail to keep appointments in a month
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				

continue on attached pages as needed....

[11] All references to patients in this table are to psychiatric patients.

Table 4.2: Clinics and CHCs: Staffing Statistics

	Staffing Profile (Numbers)													
Name of Clinic	Enrolled Nurses	Psychiatric Professional Nurses	Other Professional Nurses	OT	OTA's	Social Workers	Community Workers	Clinical Psychologist	Intern Psychologist	Psychiatrist	Psychiatric Registrar	Medical Officer	Pharmacist	Pharmacy Assistant
1)														
2)														
3)														
4)														
5)														
6)														
7)														
8)														
9)														
10)														

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5. Other Questions

5.1. Other Residential Care Facilities

How many state subsidised residential care facilities other than the hospitals mentioned above are available for inpatient care of psychiatric patients? (For example group homes, halfway houses or hostels).	
What is the total number of beds available in these residential care facilities?	

5.2. Patient Profile by Section

What is the total number of Section 9 psychiatric patients in your province?	
What is the total number of Section 4 psychiatric patients in your province?	
What is the total number of Section 28 psychiatric patients in your province?	
How often does this list get reviewed?	

THANK YOU

Appendix B. Provincial workshop participants

Northern Province

Mr R.E. Luruli
Northern Province Head Office

Mr T.C. Phuluwa
Northern Province Head Office

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Potgietersus.

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Groothoek Hospital

Dr J. Chabalala
Northern Province Psychiatrist

Mr E.A. Monareng
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Ms H. Subedar
Deputy Director: Mental health, Western Cape

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Dr S.F. Otto

Ms S. Rabe

Ms J.H. van Niekerk

Ms W. Burger

Mr S.S. Melamu

Mr M.B. Mochwaro

Dr F.W. Calitz

Ms M. Setlogelo

Ms M. Marais

Ms S. Potgieter

Appendix C. Colleagues and experts consulted

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Professor D. McIntyre
Department of Health Economics
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Ms H. Subedar
Mental health coordinator
Western Cape

Dr M. Zwarenstein
South African Medical Research Council.

Appendix D. Data reported from provincial questionnaires

(x = no data returned)

1. Bed Totals per Province

Note: In some general hospitals, bed totals are estimated from admission and length of stay data, with varying bed occupancy (80% and 100%), because data for psychiatric bed numbers in these integrated settings were not available (see chapter 3 for detailed explanation).

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
Gauteng	Psych Hosp	Weskoppies	1120	342	778	1120	342
		Sterkfontein	830	455	375	830	455
		Tara	141	60	81	141	60
	Sub-total		2091	857	1234	2091	857
	Lifecare	East Rand Sanator	450	0	450	450	0
		Randfontein	1150	0	1150	1150	0
		Randwest	2202	0	2202	2202	0
		Struisbult	180	0	180	180	0
		Waverley	320	0	320	320	0
		Witpoort	370	0	370	370	0
	Sub-total		4672	0	4672	4672	0
	Gen hosp	Baragwanath/Chris	155	155	0	155	155
		Garankuwa	55	55	0	55	55
		Helen Joseph	20	20	0	20	20
		Johannesburg	20	20	0	20	20
		Pretoria Academic	0.77	0.77	0	0.96	0.96
		Natalspruit	17.18	17.18	0	21.48	21.48
		Pholosong	13.24	13.24	0	16.55	16.55
		South Rand	1.61	1.61	0	2.01	2.01
		Tambo Memorial	8.98	8.98	0	11.22	11.22
		Tembisa	23.01	23.01	0	28.77	28.77
		Far East Rand	1.44	1.44	0	1.8	1.8
		Kopanong	18	18	0	18	18
		Leratong	25	25	0	25	25

		Pretoria West	66	40	26	66	40
		Sebokeng	32	32	0	32	32
		Dr Yusuf Dadoo	1.49	1.49	0	1.87	1.87
		Kalafong	2.74	2.74	0	3.42	3.42
	Sub-total		461.46	435.46	26	479.08	453.08
Total			7224.46	1292.46	5932	7242.08	1310.08

Province	**Level**	**Name**	**Total (100% bed occup)**	**Acute (100% bed occup)**	**Med/long**	**Total (80% bed occup)**	**Acute (80% bed occup)**
N. Province	Psych Hosp						
		Hayani	312	0	312	312	0
	Sub-total		312	0	312	312	0
	Lifecare	Thabomoopo	1240	0	1240	1240	0
		Evuxakeni	500	0	500	500	0
	Sub-total		1740	0	1740	1740	0
	Gen Hosp	Pietersburg	0	0	0	0	0
		Mankweng	0	0	0	0	0
		Mokopane	24	24	0	24	24
		St Ritas	0	0	0	0	0
		Warmbaths	0	0	0	0	0
	Sub-total		24	24	0	24	24
	District Hosp	Bushveld region	3.1	3.1	0	3.87	3.87
		Western region	9.73	9.73	0	12.17	12.17
		Southern region	361	50	311	361	50
		Northern region	199	132	46	199	132
		Lowveld region	158	158	0	158	158
		Central region	0	0	0	0	0
	Sub-total		730.83	352.83	357	734.04	356.04
Total			2806.83	376.83	2409	2810.04	380.04

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
Mpumalanga	Psych Hosp						
			0	0	0	0	0
	Sub-total		0	0	0	0	0
	Gen Hosp		0	0	0	0	0
	Sub-total		0	0	0	0	0
	District Hosp	Witbank	31	31	0	31	31
		Rob Ferrera	3.86	3.86	0	4.82	4.82
		Barbeton	2.88	2.88	0	3.6	3.6
		Shongwe	1.26	1.26	0	1.57	1.57
		Embluleni	40	40	0	40	40
		Amajuba	9	9	0	9	9
		Elise Ballot	0.34	0.34	0	0.42	0.42
		Philadelphia	38	38	0	38	38
		Themba	24	24	0	24	24
		Piet Retief	1.08	1.08	0	1.35	1.35
		Lydenburg	0.08	0.08	0	0.1	0.1
		H.A Grove	0.25	0.25	0	0.32	0.32
	Sub-total		151.75	151.75	0	154.18	154.18
Total			151.75	151.75	0	154.18	154.18

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
North-West	Psych Hosp	Bophelong	368	100	268	368	100
	Sub-total		368	100	268	368	100
	Gen Hosp	Potchefstroom	8	8	0	8	8
		Odi	0.07	0.07	0	0.09	0.09
		George Stegmann	8	8	0	8	8
		Tshomagam	16	16	0	16	16
	Sub-total		32.07	32.07	0	32.09	32.09

	District Hosp	Jubilee	55	55	0	55	55
		Thusong	20	20	0	20	20
		Ge. De la Rey	0.83	0.83	0	1.03	1.03
	Sub-total		75.83	75.83	0	76.03	76.03
Total			475.9	207.9	268	476.12	208.12

Province	**Level**	**Name**	**Total (100% bed occup)**	**Acute (100% bed occup)**	**Med/long**	**Total (80% bed occup)**	**Acute (80% bed occup)**
Free State	Psych Hosp	Poloko (Psych)	196	91	105	196	91
		Oranje	314	194	120	314	194
	Sub-total		510	285	225	510	285
	Gen Hosp	Manapo	20	20	0	20	20
		Pelonomi	20	20	0	20	20
		Boitumelo	18	18	0	18	18
		National	0	0	0	0	0
		Universitas	0	0	0	0	0
	Sub-total		58	58	0	58	58
	District Hosp	Moroko	1.64	1.64	0	2.05	2.05
		Zastron	0	0	0	0	0
		Odendaalsrus	5.42	5.42	0	6.78	6.78
		Heilbron	2.28	2.28	0	2.85	2.85
		Sasolburg	0.78	0.78	0	0.97	0.97
		Parys	0	0	0	0	0
		Reitz	0	0	0	0	0
		Clocolan	x	x	x	x	x
		Senekal	1.77	1.77	0	2.21	2.21
		Botshabelo	0	0	0	0	0
	Sub-total		11.89	11.89	0	14.86	14.86
Total			579.89	354.89	225	582.86	357.86

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
N. Cape	Psych Hosp	West End	107	55	52	107	55
	Sub-total		107	55	52	107	55
	Gen Hosp	Kimberley	0.05	0.05	0	0.07	0.07
	Sub-total		0.05	0.05	0	0.07	0.07
	District Hosp	Gordonia	0.02	0.02	0	0.02	0.02
		Springbok	0.04	0.04	0	0.05	0.05
		Calvinia	0.01	0.01	0	0.02	0.02
		Kuruman	0.04	0.04	0	0.05	0.05
		De Aar	0.02	0.02	0	0.02	0.02
	Sub-total		0.13	0.13	0	0.16	0.16
Total			107.18	55.18	52	107.23	55.23

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
E. Cape	Psych Hosp	Elizabeth Donkin	127	127	0	127	127
		Umzimkulu	250	150	100	250	150
		Tower	530	120	410	530	120
		Fort England	470	140	330	470	140
		Komani	850	192	850	850	192
	Sub-total		2227	729	1690	2227	729
	Gen Hosp	Frere	16	16	0	16	16
		C.M.H	35	35	0	35	35
		Umtata	30	30	0	30	30
	Sub-total		81	81	0	81	81
	District Hosp	Uitenhage	6	6	0	6	6
		PHPE	16	16	0	16	16
	Sub-total		22	22	0	22	22
Total			2330	832	1690	2330	832

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
W. Cape	Psych Hosp	Stikland	342	186	156	342	186
		Lentegeur	240	180	60	240	180
		Valkenberg	673	202	471	673	202
		Nelspoort	60	0	60	60	0
	Sub-total		1315	568	747	1315	568
	Gen Hosp	Groote Schuur	27	27	0	27	27
		Tygerberg	44	44	0	44	44
		Red Cross	4	0	4	4	0
		Karl Bremmer	0	0	0	0	0
		Paarl	0	0	0	0	0
		Eban Donges	0	0	0	0	0
		George	5.25	5.25	0	6.57	6.57
	Sub-total		80.25	76.25	4	81.57	77.57
	District Hosp	Riversdale	1	1	0	1	1
		Mosselbay	0	0	0	0	0
		Beauford West	0	0	0	0	0
		Outshorn	0	0	0	0	0
		Knysna	2	2	0	2	2
		Murraysburg	0	0	0	0	0
		Laingsburg	0	0	0	0	0
		Prins Albert	1	1	0	1	1
		Uniondale	1	1	0	1	1
		Allen Blyth	0	0	0	0	0
		Ceres	0	0	0	0	0
		Robertson	0	0	0	0	0
		Monitgue	0	0	0	0	0
		Caledon	0	0	0	0	0
		Hermanus	0	0	0	0	0
		Stellenbosch	0	0	0	0	0
		Mamresbury	0	0	0	0	0
		Vredenberg	0	0	0	0	0

		Piketberg	0	0	0	0	0
		Clan William	0	0	0	0	0
		Vredendal	0	0	0	0	0
		Citrusdal	0	0	0	0	0
	Sub-total		5	5	0	5	5
Total			1400.25	649.25	751	1401.57	650.57

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
KZN	Psych Hosp	Fort Napier	461	219	242	461	219
		Town Hill	586	178	408	586	178
		Madadeni	812	304	508	812	304
	Sub-total		1859	701	1158	1859	701
	Lifecare	Ekuhlengeni	819	0	819	819	0
	Sub-total		819	0	819	819	0
	Gen Hosp	Addington	20	20	0	20	20
		King George V	135	55	80	135	55
		King Edward VIII	20	20	0	20	20
		Ngwelezane	34	34	0	34	34
		Edendale	46	46	0	46	46
	Sub-total		255	175	80	255	175
	District Hosp	Nonjeni	15	15	0	15	15
		Charles Johnson	20	20	0	20	20
		St Francis	0.98	0.98	0	0.98	0.98
		Assissi	1.44	1.44	0	1.44	1.44
		Christ the King	2	2	0	2	2
		G.J Crookes	1.8	1.8	0	2.2	2.2
		Murchison	1.78	1.78	0	1.78	1.78
		Port Shepston	3.66	3.66	0	3.66	3.66
		St Andrews	2.61	2.61	0	2.61	2.61
		Tayler	2.04	2.04	0	2.04	2.04
		Appelbosch	1.81	1.81	0	1.81	1.81

	Greytown	1.86	1.86	0	1.86	1.86
	Motebello	3.2	3.2	0	3.2	3.2
	Northdale	3.85	3.85	0	3.85	3.85
	St Appolinaris	0.9	0.9	0	0.9	0.9
	Untunjambili	1.28	1.28	0	1.28	1.28
	Estcourt	2.76	2.76	0	2.76	2.76
	Ladysmith	6.9	6.9	0	8.63	8.63
	Church of Scotlanc	2.5	2.5	0	2.5	2.5
	Emmanus	1.41	1.41	0	1.41	1.41
	Benedictine	5.98	5.98	0	5.98	5.98
	Ceza	2.65	2.65	0	2.65	2.65
	Ithelejuba	1.34	1.34	0	1.34	1.34
	Thulasizwe	1.55	1.55	0	1.55	1.55
	Vryheid	3.38	3.38	0	3.38	3.38
	Bethesda	2.3	2.3	0	2.3	2.3
	Northdale	3.85	3.85	0	3.85	3.85
	Halibisa	2.96	2.96	0	2.96	2.96
	Manguzi	2.51	2.51	0	2.51	2.51
	Mosvold	2.46	2.46	0	2.46	2.46
	Mseleni	1.19	1.19	0	1.19	1.19
	Clairwood	7.1	7.1	0	7.1	7.1
	Mahatma Gandi	3.4	3.4	0	3.4	3.4
	Osindisweni	3.36	3.36	0	3.36	3.36
	Catherine Booth	1.7	1.7	0	1.7	1.7
	Ekombe	1.25	1.25	0	1.25	1.25
	Lower Umfolozi	1.02	1.02	0	1.02	1.02
	Mbongolwane	1.96	1.96	0	1.96	1.96
	Nkandla	2.66	2.66	0	2.66	2.66
	Stanger	4.49	4.49	0	4.49	4.49
	Umphumlo	1.2	1.2	0	1.2	1.2
	Ekuphumeli	0.44	0.44	0	0.44	0.44
	Eshowe	4.6	4.6	0	4.6	4.6
	Dundee	5.34	5.34	0	5.34	5.34
	Grey's	3.6	3.6	0	4.6	4.6
Sub-total		150.07	150.07	0	153.2	153.2
Total		3083.07	1026.07	2057	3086.2	1029.2

Province	Level	Name	Total (100% bed occup)	Acute (100% bed occup)	Med/long	Total (80% bed occup)	Acute (80% bed occup)
Grand total (National)			18159.33	4946.33	13384	18190.28	4977.28

2. Staff totals per province

Note: data for staff are laid out across two pages, with total staff for each facility in the far right column of every second page.

Province	Sector	Level	Name	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Gauteng	**Hosp Inpt**	Psych Hosp	Weskoppies	299	247	0	14	8	12	0
			Sterkfontein	164	122	8	5	1	10	0
			Tara	12	52	0	3.5	0	2.5	0
			East Rand San	6	14	4	0.4	11	1	0
			Randfontein	7	27	7	2.5	16	1	0
			Randwest	12	30	13	2	26	3	0
			Struisbult	2	6	0	1	3	1	0
			Waverley	1	6	2	2	11	1	0
			Witpoort	11	5	7	0.4	6	0.4	0
		Sub-total		514	509	41	30.8	82	31.9	0
		Gen Hosp	Baragwanath/C	39	48	12	1.8	0.6	1.2	0
			Garankuwa	1	14	18	2	1	0.5	0
			Helen Joseph	0	9	0	1	0	0.1	0
			Johannesburg	3	8	2	2	0	0.5	0
			Pretoria Acade	X	X	X	X	X	X	X
			Natalspruit	X	X	X	X	X	X	X
			Pholosong	X	X	X	X	X	X	X
			South Rand	0.25	X	X	X	X	X	X
			Tambo Memori	X	X	X	X	X	X	X
			Tembisa	X	X	X	X	X	X	X
			Far East Rand	X	X	X	X	X	X	X
			Kopanong	4	1	2	0	0	0.1	0
			Leratong	0	6	0	0	0	0	0
			Pretoria West	3	8	3	1	0	0.5	0
			Sebokeng	0	0	5	0.2	0	0.2	0
			Dr Yusuf Dado	X	X	X	0.1	0	0.1	0
			Kalafong	X	X	X	X	X	X	X
		Sub-total		50.25	94	42	8.1	1.6	3.2	0
Total				564.25	603	83	38.9	83.6	35.1	0

Sector	Level	Name	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
Hosp Inpt	Psych Hosp	Weskoppies	10	8	12.9	14	2	5	0	X	X	631.9
		Sterkfontein	7	10	5	8	4	1	1	X	X	346
		Tara	2	5	5	6	1	0.5	0	X	X	89.5
		East Rand Sa	0	0	0.4	0	0.5	0.2	0.2	74	5	37.7
		Randfontein	0	0	2	0	0.15	1	1	135	15	64.65
		Randwest	0	0	3	0	2	1.5	1	227	6	93.5
		Struisbult	0	0	0.2	0	0.25	0.2	1	28	5	14.65
		Waverley	0	0	1	0	1	1	1	17	5	27
		Witpoort	0	0	0.4	0	0.375	0.625	1	53	5	32.2
	Sub-total		19	23	29.9	28	11.275	11.025	6.2	534	41	1337.1
	Gen Hosp	Baragwanath/	2.4	0	3	2	6	0	0	0	0	116
		Garankuwa	5	4.5	2.5	5.5	0	0	0	18	3	54
		Helen Joseph	2	1	0.8	1.6	1	0	0	0	0	16.5
		Johannesburg	0.5	1	1.25	1.8	0	0	0	0	0	20.05
		Pretoria Acac	X	X	X	X	X	X	X	X	X	0
		Natalspruit	X	X	0.1	X	X	X	X	X	X	0.1
		Pholosong	X	X	X	X	X	X	X	X	X	0
		South Rand	X	X	0.25	X	X	X	X	X	X	0.5
		Tambo Memo	X	X	X	X	0.5	X	X	X	X	0.5
		Tembisa	X	X	0.1	X	X	X	X	X	X	0.1
		Far East Ranc	X	X	0.1	X	X	X	X	X	X	0.1
		Kopanong	0	0	0	0	0	0	0	0	0	7.1
		Leratong	0	0	0.8	0	0.8	0	0	0	0	7.6
		Pretoria West	0	0	0.4	1	1	0	0	0	0	17.9
		Sebokeng	0	0	0.8	0	0.4	0	0	0	0	6.6
		*Dr Yusuf Dac	0	0	0.1	0	0.2	0	0	0	0	0.5
		*Kalafong	X	X	X	X	X	X	X	X	X	X
	Sub-total		9.9	6.5	10.2	11.9	9.9	0	0	18	3	247.55
Total			28.9	29.5	40.1	39.9	21.175	11.025	6.2	552	44	1584.65

			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Hosp OPD	Psych Hosp	Weskoppies	0	3	0	1	0	0.5	0
		Sterkfontein	0	1	0	0	0	0	0
		Tara	0	6	0	2.5	0	0.5	0
		East Rand San	0	0	0	0	0	0	0
		Randfontein	0	0	0	0	0	0	0
		Randwest	0	0	0	0	0	0	0
		Struisbult	0	0	0	0	0	0	0
		Waverley	0	0	0	0	0	0	0
		Witpoort	0	0	0	0	0	0	0
	Sub-total		0	10	0	3.5	0	1	0
	Gen Hosp	Baragwanath/C	2	2	1	1.2	0.4	0.8	0
		Garankuwa	0	5	0	0	0	0	0
		Helen Joseph	0.25	0	0	0.5	0	0.1	0
		Johannesburg	0	1.5	0	0	0	0.5	0
		Pretoria Acade	0	0	1	1	0	0	0
		Natalspruit	X	X	X	X	X	X	X
		Pholosong	0	0	0	0	0	0	0
		South Rand	0.25	0	0	0	0	0	0
		Tambo Memori	0	0	0	0	0	0	0
		Tembisa	0	1	0	0	0	0	0
		Far East Rand	0	0	0	0	0	0.25	0
		Kopanong	0	0	0	0	0	0	0
		Leratong	0	0.1	0.3	0	0	0	0
		Pretoria West	0	0	0	0	0	0	0
		Sebokeng	0	0	0.2	0	0	0	0
		Dr Yusuf Dado	0	0.2	0	0.1	0	0.1	0
		Kalafong	0	0.2	0	0.1	0	0	0
	Sub-total		2.5	10	2.5	2.9	0.4	1.75	0
Total (hospital OPD)			2.5	20	2.5	6.4	0.4	2.75	0
Total (hosp inpatient + OPD)			566.75	623	85.5	45.3	84	37.85	0

Hosp OPD	Psych Hosp		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
		Weskoppies	2	2	1	2	0	0.2	0	0	0	11.7
		Sterkfontein	0	0	0	0	0	0	0	0	0	1
		Tara	1	3	2	1	1	0.5	0	0	0	17.5
		East Rand Sa	0	0	0	0	0	0	0	0	0	0
		Randfontein	0	0	0	0	0	0	0	0	0	0
		Randwest	0	0	0	0	0	0	0	0	0	0
		Struisbult	0	0	0	0	0	0	0	0	0	0
		Waverley	0	0	0	0	0	0	0	0	0	0
		Witpoort	0	0	0	0	0	0	0	0	0	0
	Sub-total		3	5	3	3	1	0.7	0	0	0	30.2
	Gen Hosp	Baragwanath/	1.6	0	1	1	1	0	0	0	0	12
		Garankuwa	5	4.5	2.5	5.5	0	0	0	2	4	22.5
		Helen Joseph	0	2	0.2	0.4	0	0	0	0	0	3.45
		Johannesburg	0.5	1	2	2.2	0	0	0	0	0	7.7
		Pretoria Acac	0	2	0.5	0.5	0	0	0	0	0	5
		Natalspruit	X	X	X	X	X	X	X	X	X	X
		Pholosong	0	0	0	0	0	0	0	0	0	0
		South Rand	0	0	0.25	0	0	0	0	0	0	0.5
		Tambo Memo	0	0	0.1	0	0	0	0	0	0	0.1
		Tembisa	0	0	0.2	0	0	0	0	0	0	1.2
		Far East Ranc	0.1	0	0.1	0	0	0	0	0	0	0.45
		Kopanong	0	0	0	0	0.2	0	0	0	0	0.2
		Leratong	0	0	0.2	0	0.2	0	0	0	0	0.8
		Pretoria West	0	0	0	0	0	0	0	0	0	0
		Sebokeng	0	0	0.2	0	0.1	0	0	0	0	0.5
		Dr Yusuf Dad	0	0	0.1	0	0.2	0	0	0	0	0.7
		Kalafong	0	0.2	0.25	0	0	0	0	0	0	0.75
	Sub-total		7.2	9.7	7.6	9.6	1.7	0	0	2	4	55.85
Total (hospital OPD)			10.2	14.7	10.6	12.6	2.7	0.7	0	2		86.05
Total (hosp inpatient + OPD)			39.1	44.2	50.7	52.5	23.875	11.725	6.2	554		1670.7

Community	**Clin+CHC**	**Central Wits R**	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		City	0	1	0	0	0	0.6	0
		Hillbrow	0	1	0	0	0	0	0
		Townsview	0	1	0	0	0	0.2	0
		Jeppe	0	1	0	0	0	0	0
		Gordonia	0	0.2	0	0	0	0	0
		Alexandra	1	1	0	0.2	1	0	0
		Brixton	0	1	0	0	0	0.4	0
		Riverley	0	0.5	0	0	0	0	0
		Westbury	0	0.5	0	0	0	0	0
		Eldorado Park	0	1	0	0.2	0	0	0
		Lenasia	0	2	0	0.2	0	0	0
		Florida	0	1	0	0	0	0.2	0
		Lillian Ngoyi	0	0	0	0	0	0.2	0
		Chianelo	1	2	0	0.2	1	0	2
		Diepkloof	1	1	0	0	0	0.2	0
		Dobsonville	1	1	0	0.2	0	0	0
		Meadowlands	1	2	0	0	0	0	0
		Mofolo	1	2	0	0.2	1	0.2	3
		Orange Farm	0	1	0	0	0	0	0
		Orlando	1	1	0	0	0	0	0
		Zola	1	2	0	0.2	1	0.4	2
		Ennedale	0	1	0	0	0	0	0
		Pimville	0	0.2	0	0	0	0	0
		Sub-total	8	24.4	0	1.4	4	2.4	7
		East Rand Re	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Alberton	0	2	0	0	0	0	0
		Eden Park	0	1	0	0	0	0	0
		Dresser	0	1	0	0	0	0	0
		Actonville	0	1	0	0	0	0	0
		Daveyton	1	1	0	0	0	0	0
		Boksburg	0	1	0	0	0	1	0
		Vosloorus	0	1	0	0	0	0	0
		Reiger Park	0	1	0	0	0	0	0
		Tsakane	1	1	0	0	0	0	0
		Rabie Ridge	0	1	0	0	0	0	0

Communit	Clin+CHC	**Central Wits**	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
		City	0.8	0.6	0.2	0.4	0	0	0			
		Hillbrow	0.2	0	0.2	0.4	0	0	0			1.8
		Townsview	0	0	0.2	0	0.2	0	0			1.6
		Jeppe	0	0	0	0.2	0	0	0			1.2
		Gordonia	0	0	0	0.4	0	0	0			0.6
		Alexandra	0.2	0	0	0.4	0	0	0			3.8
		Brixton	0.4	0	0	0	0.2	0	0			2
		Riverley	0	0	0	0.4	0	0	0			0.9
		Westbury	0	0	0	1	0	0	0			1.5
		Eldorado Park	0.2	0	0	0.2	0.2	0	0			1.8
		Lenasia	0.8	0	0	0	1.5	0	0			4.5
		Florida	0	0	0	0	0.2	0	0			1.4
		Lillian Ngoyi	0.2	0	0	0	0	0	0			0.4
		Chianelo	0	0	0	0.4	0	0	0			6.6
		Diepkloof	0	0	0	0.2	0	0	0			2.4
		Dobsonville	0	0	0	0.4	0	0	0			2.6
		Meadowlands	0	0	0	0.4	0	0	0			3.4
		Mofolo	0.2	0.4	0	0.4	0	0	0			8.4
		Orange Farm	0	0	0	0.4	0	0	0			1.4
		Orlando	0	0	0	0.4	0	0	0			2.4
		Zola	0.4	0.4	0	0.6	0	0	0			8
		Ennedale	0	0	0	0	0.2	0	0			1.2
		Pimville	0	0	0	0.05	0	0	0			0.25
		Sub-total	3.4	1.4	0.6	6.65	2.5	0	0	0		61.75
		East Rand Re	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
		Alberton	0	0	0	0.2	0	0	0	0	0	2.2
		Eden Park	0	0	0	0.2	0	0	0	0	0	1.2
		Dresser	0	0	0	0.2	0	0	0	0	0	1.2
		Actonville	0.2	0	0.2	0	0	0	0	0	0	1.4
		Daveyton	0	0	0	0.2	0	0	0	0	0	2.2
		Boksburg	0.2	0	0.2	0	0	0	0	0	0	2.4
		Vosloorus	0	0	0	0.2	0	0	0	0	0	1.2
		Reiger Park	0.2	0	0	0.2	0	0	0	0	0	1.4
		Tsakane	0	0	0.2	0	0	0	0	0	0	2.2
		Rabie Ridge	0	0	0	0.2	0	0	0	0	0	1.2

Bophelong	0	1	0	0	0	0	0
Duduza	0	1	0	0	0	0	0
Devon	0	1	0	0	0	0	0
Kwa Thema	0	1	0	0	0	1	0
Ratanda	0	1	0	0	0	0	0
Randvaal	0	1	0	0	0	0	0
Germiston	0	2	0	0	0	1	0
Dukatole	0	1	0	0	0	0	0
Katlehong Nort	0	1	0	0	0	1	1
Goba	0	1	0	0	0	0	0
Zonkizizwe	0	1	0	0	0	0	0
Moleleki	0	1	0	0	0	0	0
Khumalo	0	1	0	0	0	0	0
Palm Ridge	0	1	0	0	0	0	0
Kempton Park	0	2	0	0	0	0	0
Thembisa CHC	0	1	0	0	0	0	0
Thembisa clinic	0	1	0	0	0	0	0
Erin	0	1	0	0	0	0	0
Esangweni	0	1	0	0	0	0	0
Sub-total	2	32	0	0	0	4	1
Vaal Region	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Tokisong	0	1	0	0	0	0.11	0
Sharpeville adu	0	1	0	0	0	0.11	0
Boipatong	0	1	0	0	0	0.11	0
Kookrus	0	1	0	0	0	0.11	0
Vereeniging	0	2	0	0	0	0.11	0
Van der Bijl Pa	0	1	0	0	0	0.11	0
Sharpeville chil	0	1	0	0	0	0.11	0
Vereeniging ch	0	0.5	0	0	0	0.11	0
Van der Bijl Pa	0	0.5	0	0	0	0.11	0
Sub-total	0	9	0	0	0	0.99	0
Pretoria regio	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Central North	0	2	0	0.25	0.33	0.25	0
Central West	0	1	0	0.25	0.33	0.25	0
Central East	0	2	0	0.25	0.33	0.25	0
Pretoria North	0	1	0	0.25	0	0.25	0

Bophelong	0	0	0	0.2	0	0	0	0	0	1.2
Duduza	0	0	0	0.2	0	0	0	0	0	1.2
Devon	0	0	0.2	0	0	0	0	0	0	1.2
Kwa Thema	0.2	0	0	0.2	0	0	0	0	0	2.4
Ratanda	0	0	0.2	0	0	0	0	0	0	1.2
Randvaal	0	0	0	0	0	0	0	0	0	1
Germiston	0.2	0	0.2	0.2	0	0	0	0	0	3.6
Dukatole	0.2	0	0	0	0	0	0	0	0	1.2
Katlehong No	0	0.2	0.2	0.2	0	0	0	0	0	3.6
Goba	0	0	0.2	0	0	0	0	0	0	1.2
Zonkizizwe	0	0	0.2	0	0	0	0	0	0	1.2
Moleleki	0	0	0.2	0	0	0	0	0	0	1.2
Khumalo	0	0	0	0	0	0	0	0	0	1
Palm Ridge	0	0	0	0	0.2	0	0	0	0	1.2
Kempton Park	0.2	0	0	0.2	0	0	0	0	0	2.4
Thembisa CH	0	0	0.2	0.2	0	0	0	0	0	1.4
Thembisa clin	0	0	0	0	0	0	0	0	0	1
Erin	0	0	0	0	0	0	0	0	0	1
Esangweni	0	0	0	0	0	0	0	0	0	1
Sub-total	1.4	0.2	2.2	2.8	0.2	0	0	0	0	45.8
Vaal Region	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Tokisong	0	0	0.2	0.2	0	0	0	0	0	1.51
Sharpeville ac	0.1	0	0.2	0	0	0	0	0	0	1.41
Boipatong	0	0	0	0.05	0	0	0	0	0	1.16
Kookrus	0	0	0	0.2	0	0	0	0	0	1.31
Vereeniging	0	0	0	0.4	0	0	0	0	0	2.51
Van der Bijl P	0	0	0	0.2	0	0	0	0	0	1.31
Sharpeville ch	0.1	0.2	0.2	0	0	0	0	0	0	1.61
Vereeniging c	0.1	0	0.1	0	0	0	0	0	0	0.81
Van der Bijl P	0.1	0	0.1	0	0	0	0	0	0	0.81
Sub-total	0.4	0.2	0.8	1.05	0	0	0	0	0	12.44
Pretoria regi	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Central North	0.33	0	0.2	0	0	0	0	0	0	3.36
Central West	0.2	0	0.2	0	0	0	0	0	0	2.23
Central East	0.33	0	0.2	0	0	0	0	0	0	3.36
Pretoria North	0.33	0	0	1	0	0	0	0	0	2.83

Hercules	0	1	0	0	0	0	0
Rietfontein	0	1	0	0	0	0	0
Sammy Marks	0	1	0	0	0	0	0
Sunnyside	0	1	0	0	0	0	0
Pretoriuspark	0	1	0	0	0	0	0
Danville	0	1	0	0	0	0	0
Mamelodi	0	2	0	0	0	1	0
Eersterus	0	1	0	0	0	0	0
Eastlynne	0	1	0	0	0	0	0
Silverton	0	1	0	0	0	0	0
Laudium	0	1	0	0	0	0	0
Centurion	0	1	0	0	0	0	0
Attridgeville	1	2	0	0	1	0	0
Vembe	0	1	0	0	1	0	0
Lotus Garden	0	1	0	0	0	0	0
Sautsville	0	1	0	0	0	0	0
Bronkhorstspru	0	1	0	0	0	0	0
Cullinan/Refilw	0	1	0	0	0	0	0
Service Produc	0	1	0	0	0	0	0
Soshanguve I	0	0	1	0	0	0	0
Soshanguve II	0	0	1	0	0	0	0
Soshanguve III	0	0	1	0	0	0	0
Boikutsong	0	0	1	0	0	0	0
Child & adolesc	0	2	0	1	1	0	0
Eersterust: Chil	0	1	0	0.2	0	0	0
Psychogeriatric	0	1	0	0	0	0	0
Sub-total	1	31	4	2.2	3.99	2	0
West Rand	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Kagiso A	0	0.66	0	0	1	0.25	0
Hekpoort	0	0.66	0	0	0	0	0
Mogale	0	0.66	0	0	0	0	0
Gzaadville	0	0.5	0	0	0	0	0
Swannieville	0	0.5	0	0	0	0	0
Munsieville	0	0.5	0	0	0	0	0
Muldersdrift	0	0.5	0	0	0	0	0
SA Dutch Cent	0	1	0	0	0	0	0

Hercules	0	0	0	0	1	0	0	0	0	2
Rietfontein	0	0	0	0	1	0	0	0	0	2
Sammy Marks	0	0	0	0	1	0	0	0	0	2
Sunnyside	0	0	0	1	0	0	0	0	0	2
Pretoriuspark	0	0	0	0	0.2	0	0	0	0	1.2
Danville	0	0	0	0	0.2	0	0	0	0	1.2
Mamelodi	1	0	1	1	0.2	0	0	0	0	6.2
Eersterus	0.2	0	0.2	0	0	0	0	0	0	1.4
Eastlynne	0	0	0	0	0.2	0	0	0	0	1.2
Silverton	0.2	0	0	0	0.2	0	0	0	0	1.4
Laudium	0.2	0	0.2	0	0	0	0	0	0	1.4
Centurion	1	0	1	0	0	0	0	0	0	3
Attridgeville	0.2	0	0	0	0.2	0	0	0	0	4.4
Vembe	0	0	0	1	0	0	0	0	0	3
Lotus Garden	0	0	0	0	0.2	0	0	0	0	1.2
Sautsville	0	0	0	0	0.2	0	0	0	0	1.2
Bronkhorstspr	0	0	0	1	0	0	0	0	0	2
Cullinan/Refil	0	0	0	1	0	0	0	0	0	2
Service Produ	0	0	0	0	0.2	0	0	0	0	1.2
Soshanguve I	0	0	0	0.2	0	0	0	0	0	1.2
Soshanguve I	0	0	0.2	0.2	0	0	0	0	0	1.4
Soshanguve I	0	0	0.2	0.2	0	0	0	0	0	1.4
Boikutsong	0	0	0.2	0.2	0	0	0	0	0	1.4
Child & adoles	1.2	0	0.4	0	0	0	0	0	0	5.6
Eersterust: Ch	0.2	0	0.2	0	0	0	0	0	0	1.6
Psychogeriatr	0	0.2	0	0	0	0	0	0	0	1.2
Sub-total	5.39	0.2	4.2	6.8	4.8	0	0	0		65.58
West Rand	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Kagiso A	0	0.4	0.1	0.2	0.3	0	0	0	0	2.91
Hekpoort	0	0	0	0.2	0	0	0	0	0	0.86
Mogale	0.2	0	0.1	0	0	0	0	0	0	0.96
Gzaadville	0	0	0.1	0	0	0	0	0	0	0.6
Swannieville	0	0	0	0.2	0	0	0	0	0	0.7
Munsieville	0.2	0	0	0.2	0	0	0	0	0	0.9
Muldersdrift	0	0	0.1	0	0	0	0	0	0	0.6
SA Dutch Cer	0.2	0.4	0.1	0	0.3	0	0	0	0	2

	Randfontein	0	1	0	0	0	0	0
	Mahlakeng	0	1	0	0	1	0.25	0
	Toekomsrus	0	1	0	0	0	0	0
	Bekkersdal	0	1	0	0	0	0	0
	Westonasia	0	1	0	0	0	0	0
	Sybrand	0	1	0	0	0	0	0
	Khutsong	0	1	0	0	0	0.25	0
	Kagiso Child ar	0	1	0	0	0	0.25	0
	Sub-total	0	12.98	0	0	2	1	0
Total (Community clinics and CHCs)		11	109.38	4	3.6	9.99	10.39	8
Total (Community and Hosp OPD)		13.5	129.38	6.5	10	10.39	13.14	8
Total (Hosp and Comm)		577.75	732.38	89.5	48.9	93.99	48.24	8

Province	**Sector**	**Level**	**Name**											
N.Provinc	**Hosp Inpt**	Psych Hosp		Enrol Nurses		Psych Nurses		Gen Nurses		OT		OTA	Soc Workers	CHWs
			Thabomoopo	13		35		6		1		16	2	
			Evuxakeni	10		22		0		0.6		3	1	
			Hayani	24		14		8		1		3	0	
		Sub-total		47		71		14		2.6		22	3	0
		Gen hosp	Pietersburg	x		x		x		x		x	x	x
			Mankweng	x		x		x		x		x	x	x
			Mokopane	8		17		12		1		1	2	x
			St Ritas	2		3		x		x		x	x	x
			Warmbaths	x		x		x		x		x	x	x
		Sub-total		10		20		12		1		1	2	0
		Distr hosp	Bushveld regio	48		39		90		0		0	1	0
			Western region	0		31		56		2		16	1	0
			Southern regio	43		58		42		1		6	6	0
			Northern regior	17		24		4		1		1	4	0
			Lowveld (Nkhe	5		19		1		1		6	1	0
			Central region	x		x		x		x		x	x	x
		Sub-total		113		171		193		5		29	13	0

	Randfontein	0.2	0	0	0	0.3	0	0	0	0	1.5
	Mahlakeng	0.2	0	0.1	0	0	0	0	0	0	2.55
	Toekomsrus	0.2	0	0.1	0	0	0	0	0	0	1.3
	Bekkersdal	0.2	0	0	0.2	0	0	0	0	0	1.4
	Westonasia	0	0	0.1	0	0	0	0	0	0	1.1
	Sybrand	0	0.2	0.1	0	0	0	0	0	0	1.3
	Khutsong	0.2	0	0.1	0	0	0	0	0	0	1.55
	Kagiso Child a	0.2	0	0.1	0	0	0	0	0	0	1.55
	Sub-total	1.8	1	1.1	1	0.9	0	0	0		21.78
Total (Community clinics and CHCs)		12.39	3	8.9	18.3	8.4	0	0	0		207.35
Total (Community and Hosp OPD)		22.59	17.7	19.5	30.9	11.1	0.7	0	2		293.4
Total (Hosp and Comm)		51.49	47.2	59.6	70.8	32.275	11.725	6.2	554	44	1878.05

Sector	**Level**	**Name**	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Hosp Inpt	Psych Hosp	Thabomoopo			0.3		2	0.4		133	11	75.7
		Evuxakeni			0.45		0.25	0.3	1	79	18	38.6
		Hayani					0.1			54		50.1
	Sub-total		0	0	0.75	0	2.35	0.7	1	266	29	164.4
	Gen hosp	Pietersburg	x	x	x	x	x	x	x	x	x	0
		Mankweng	x	x	x	x	x	x	x	x	x	0
		Mokopane	x	x	0.1	x	1.5	0.1	x	x	x	42.7
		St Ritas	0.1	x	x	x	x	x	x	x	x	5.1
		Warmbaths	x	x	0.1	x	x	x	x	x	x	0.1
	Sub-total		0.1	0	0.2	0	1.5	0.1	0	0	0	47.9
	Distr hosp	Bushveld regi	0	0	0.4	0	x	x	x	x	x	178.4
		Western regic	0	0	0	0	x	x	x	x	x	106
		Southern regi	0.4	0	0	0	x	x	x	x	x	156.4
		Northern regic	0	0	0	0	x	x	x	x	x	51
		Lowveld (Nkh	0	0	1	0	1	1	1	1	7	37
		Central region	x	x	x	x	x	x	x	x	x	0
	Sub-total		0.4	0	1.4	0	1	1	1	1	7	528.8

Total (Hospital inpatient staff)	170	262	219	8.6	52	18	0

Hosp OPD	Psych Hosp		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Thabomoopo	0	0	0	0	0	0	0
		Evuxakeni	0	0	0	0	0	0	0
		Hayani	0	0	0	0	0	0	0
	Sub-total		0	0	0	0	0	0	0
	Gen hosp	Pietersburg	4	4	11	0	0	0	0
		Mankweng	9	9	4	0	0	0	0
		Mokopane	x	x	x	x	x	x	x
		St Ritas	x	x	x	x	x	x	x
		Warmbaths	x	x	x	x	x	x	x
	Sub-total		13	13	15	0	0	0	0
	Distr hosp	Bushveld regio	0	0	0	0	0	0	0
		Western region	0	0	0	0	0	0	0
		Southern regio	0	6	0	0	0	0	0
		Northern regior	2	7	1	1	3	1	5
		Lowveld (Nkhe	4	1	9	1	0	1	0
		Central region	x	x	x	x	x	x	x
	Sub-total		6	14	10	2	3	2	5
	Total (Hospital OPD)		19	27	25	2	3	2	5
Total (Hospital inpatient & OPD)			189	289	244	10.6	55	20	5

Community	Clins & CHC		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Bushveld region	x	x	x	x	x	x	x
		Western region							
		Bakenberg	0	0	3	0	0	0	0
		Bavaria	0	2	1	0	0	0	0
		Tiberius	0	1	1	0	0	0	0
		Mattanau	0	1	1	0	0	0	0

Total (Hospital inpatient staff)		0.5	0	2.35	0	4.85	1.8	2	267	36	741.1

Hosp OPD	Psych Hosp		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
		Thabomoopo	0	0	0	0	0	0	0	0	0	0
		Evuxakeni	0	0	0	0	0	0	0	0	0	0
		Hayani	0	0	0	0	0	0	0	0	0	0
	Sub-total		0	0	0	0	0	0	0	0	0	0
	Gen hosp	Pietersburg	0	0	0	0	x	x	x	0	0	19
		Mankweng	0	0	0	0	x	x	x	0	0	22
		Mokopane	x	x	x	x	x	x	x	x	x	x
		St Ritas	x	x	x	x	x	x	x	x	x	x
		Warmbaths	x	x	x	x	x	x	x	x	x	x
	Sub-total		0	0	0	0	0	0	0	0	0	41
	Distr hosp	Bushveld regi	0	0	0	0	0	0	0	0	0	0
		Western regic	0	0	0	0	0	0	0	0	0	0
		Southern regi	0	0	0	0	0	0	0	0	0	6
		Northern regic	0	0	0	0	1	0	5	0	0	26
		Lowveld (Nkh	0	0	1	0	13	1	3	1	0	34
		Central region	x	x	x	x	x	x	x	x	x	0
	Sub-total		0	0	1	0	14	1	8	1	0	66
	Total (Hospital OPD)		0	0	1	0	14	1	8	1	0	107
Total (Hospital inpatient & OPD)			0.5	0	3.35	0	18.85	2.8	10	268	36	848.1

Communit	Clin+CHC		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
		Bushveld region	x	x	x	x	x	x	x	x	x	0
		Western region										
		Bakenberg	0	0	0	0	0	0	0	0	0	3
		Bavaria	0	0	0	0	0	0	0	0	0	3
		Tiberius	0	0	0	0	0	0	0	0	0	2
		Mattanau	0	0	0	0	0	0	0	0	0	2

Rebone	0	0	3	0	0	0	0
Mankuwe	0	1	1	0	0	0	0
Weldevreden	0	1	1	0	0	0	0
Jakkalskruil	0	1	1	0	0	0	0
Mokamole	0	0	3	0	0	0	0
Paulos	0	0	2	0	0	0	0
Mapela	0	2	2	0	0	0	0
Tshamahansi	0	2	1	0	0	0	0
Mamaselela	0	3	3	0	0	0	0
Vaalkop	0	0	2	0	0	0	0
Pholotsi	0	0	2	0	0	0	0
Phafola	0	1	1	0	0	0	0
Mobile: Bakent	1	3	3	0	0	0	0
Mobile: Koedoe	0	0	1	0	0	0	0
Mobile: Beauty	0	0	1	0	0	0	0
Mobile: Mapela	0	1	3	0	0	0	0
Mobile: Palala	0	0	1	0	0	0	0
Mobile A	1	1	1	0	0	0	0
Mobile: Roedta	0	0	2	0	0	0	0
Mobile: Sterkri	1	1	1	0	0	0	0
Mobile: Potgiet	1	1	2	0	0	0	0
Mobile: Gillemt	1	0	1	0	0	0	0
Mahwelerems I	4	1	5	0	0	0	0
Mahwelerems I	2	1	3	0	0	0	0
Potgietersrus	1	2	1	0	0	0	0
Elandiskraal	1	0	1	0	0	0	0
Bokwalakwala	0	1	2	0	0	0	0
Sub-total	13	27	56	0	0	0	0

Southern regio	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Hlogotloli	1	0	5	0	0	0	0
Phokoane	1	1	4	0	0	0	0
Sephakli	2	1	1	0	0	0	0
Marishane	1	0	3	0	0	0	0
Phaahla	0	1	2	0	0	0	0
Probeerin	0	1	1	0	0	0	0

Rebone	0	0	0	0	0	0	0	0	0	3
Mankuwe	0	0	0	0	0	0	0	0	0	2
Weldevreden	0	0	0	0	0	0	0	0	0	2
Jakkalskruil	0	0	0	0	0	0	0	0	0	2
Mokamole	0	0	0	0	0	0	0	0	0	3
Paulos	0	0	0	0	0	0	0	0	0	2
Mapela	0	0	0	0	0	0	0	0	0	4
Tshamahansi	0	0	0	0	0	0	0	0	0	3
Mamaselela	0	0	0	0	0	0	0	0	0	6
Vaalkop	0	0	0	0	0	0	0	0	0	2
Pholotsi	0	0	0	0	0	0	0	0	0	2
Phafola	0	0	0	0	0	0	0	0	0	2
Mobile: Baker	0	0	0	0	0	0	0	0	0	7
Mobile: Koedc	0	0	0	0	0	0	0	0	0	1
Mobile: Beaut	0	0	0	0	0	0	0	0	0	1
Mobile: Mapel	0	0	0	0	0	0	0	0	0	4
Mobile: Palala	0	0	0	0	0	0	0	0	0	1
Mobile A	0	0	0	0	0	0	0	0	0	3
Mobile: Roedt	0	0	0	0	0	0	0	0	0	2
Mobile: Sterkr	0	0	0	0	0	0	0	0	0	3
Mobile: Potgie	0	0	0	0	0	0	0	0	0	4
Mobile: Gillen	0	0	0	0	0	0	0	0	0	2
Mahwelerems	0	0	0	0	0	0	0	0	0	10
Mahwelerems	0	0	0	0	0	0	0	0	0	6
Potgietersrus	0	0	0	0	0	0	0	0	0	4
Elandiskraal	0	0	0	0	0	0	0	0	0	2
Bokwalakwala	0	0	0	0	0	0	0	0	0	3
Sub-total	0	0	0	0	0	0	0	0	0	96

Southern regi	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Hlogotloli	0	0	0	0	0	0	0	0	0	6
Phokoane	0	0	0	0	0	0	0	0	0	6
Sephakli	0	0	0	0	0	0	0	0	0	4
Marishane	0	0	0	0	0	0	0	0	0	4
Phaahla	0	0	0	0	0	0	0	0	0	3
Probeerin	0	0	0	0	0	0	0	0	0	2

Klipspruit	0	0	1	0	0	0	0
Goedgedacht	0	0	2	0	0	0	0
Kensaam	1	0	2	0	0	0	0
Rietfontein	0	1	1	0	0	0	0
Mampane	2	0	2	0	0	0	0
Mmotwaneng	2	0	1	0	0	0	0
Dikgalopeng	2	0	2	0	0	0	0
Matsepe	2	1	2	0	0	0	0
Rammupudu	2	1	2	0	0	0	0
Magalies	2	0	2	0	0	0	0
Setlaboswana	2	0	1	0	0	0	0
Leeufontein	2	1	2	0	0	0	0
Motetema	2	1	2	0	0	0	0
Rakgoadi	2	0	2	0	0	0	0
Moeding	2	0	1	0	0	0	0
Mmutlane	0	1	0	0	0	0	0
Mashabela	0	0	2	0	0	0	0
Motsepe	0	0	1	0	0	0	0
Mmanatoane	0	1	0	0	0	0	0
Selepe	0	1	0	0	0	0	0
Mecklengberg	1	1	1	0	0	0	0
Rietfontein	0	0	2	0	0	0	0
Sterkspruit	0	0	2	0	0	0	0
Schlikmanskloc	0	0	2	0	0	0	0
Basskloof	0	0	2	0	0	0	0
Bothashoek	2	0	2	0	0	0	0
Eerstegeluk	1	0	1	0	0	0	0
Naboomkopies	1	1	1	0	0	0	0
Praktiseer	1	0	2	0	0	0	0
Taung	0	1	1	0	0	0	0
Poli	0	1	2	0	0	0	0
Jane Furse	0	0	2	0	0	0	0
Marulaneng	1	0	2	0	0	0	0
Manganeng	1	0	2	0	0	0	0
Mailapitsane	0	0	2	0	0	0	0
Magnet heights	0	0	2	0	0	0	0

Klipspruit	0	0	0	0	0	0	0	0	0	1
Goedgedacht	0	0	0	0	0	0	0	0	0	2
Kensaam	0	0	0	0	0	0	0	0	0	3
Rietfontein	0	0	0	0	0	0	0	0	0	2
Mampane	0	0	0	0	0	0	0	0	0	4
Mmotwaneng	0	0	0	0	0	0	0	0	0	3
Dikgalopeng	0	0	0	0	0	0	0	0	0	4
Matsepe	0	0	0	0	0	0	0	0	0	5
Rammupudu	0	0	0	0	0	0	0	0	0	5
Magalies	0	0	0	0	0	0	0	0	0	4
Setlaboswana	0	0	0	0	0	0	0	0	0	3
Leeufontein	0	0	0	0	0	0	0	0	0	5
Motetema	0	0	0	0	0	0	0	0	0	5
Rakgoadi	0	0	0	0	0	0	0	0	0	4
Moeding	0	0	0	0	0	0	0	0	0	3
Mmutlane	0	0	0	0	0	0	0	0	0	1
Mashabela	0	0	0	0	0	0	0	0	0	2
Motsepe	0	0	0	0	0	0	0	0	0	1
Mmanatoane	0	0	0	0	0	0	0	0	0	1
Selepe	0	0	0	0	0	0	0	0	0	1
Mecklengberg	0	0	0	0	0	0	0	0	0	3
Rietfontein	0	0	0	0	0	0	0	0	0	2
Sterkspruit	0	0	0	0	0	0	0	0	0	2
Schlikmanskl	0	0	0	0	0	0	0	0	0	2
Basskloof	0	0	0	0	0	0	0	0	0	2
Bothashoek	0	0	0	0	0	0	0	0	0	4
Eerstegeluk	0	0	0	0	0	0	0	0	0	2
Naboomkopie	0	0	0	0	0	0	0	0	0	3
Praktiseer	0	0	0	0	0	0	0	0	0	3
Taung	0	0	0	0	0	0	0	0	0	2
Poli	0	0	0	0	0	0	0	0	0	3
Jane Furse	0	0	0	0	0	0	0	0	0	2
Marulaneng	0	0	0	0	0	0	0	0	0	3
Manganeng	0	0	0	0	0	0	0	0	0	3
Mailapitsane	0	0	0	0	0	0	0	0	0	2
Magnet heigh	0	0	0	0	0	0	0	0	0	2

Mohlaletsi	0	0	3	0	0	0	0
Seroka	0	0	2	0	0	0	0
Madibaneng	0	0	2	0	0	0	0
Radinqwane	0	0	2	0	0	0	0
Phaahlamaano	0	0	2	0	0	0	0
Mailasegone	0	0	2	0	0	0	0
Mphanama	0	0	2	0	0	0	0
Mamone	0	0	2	0	0	0	0
Nehabeleng	0	0	4	0	0	0	0
Nkoana	1	0	2	0	0	0	0
Ngoabe	0	0	2	0	0	0	0
Schoonoord	2	0	3	0	0	0	0
Moiplaats	0	0	2	0	0	0	0
Sub-total	39	16	102	0	0	0	0

Northern regior	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Siloam	0	5	4	0	0	1	0
Mudimeli	0	0	1	0	0	0	0
Makhado	0	4	5	0	0	1	0
Tshikulani	0	1	1	0	0	0	0
Rabali	0	0	2	0	0	0	0
Mephephu	0	0	3	0	0	0	0
Straightae	0	0	2	0	0	0	0
Khomele	0	0	1	0	0	0	0
Tshawara	0	0	2	0	0	0	0
Matsa	0	0	2	0	0	0	0
Ntudimeli	0	0	1	0	0	0	0
Mauluma	0	0	2	0	0	0	0
Fondiwe	0	1	2	0	0	0	0
Valdezia	1	1	2	0	0	0	0
Kuruleni	0	1	2	0	0	0	0
Marseilles	2	6	2	0	0	0	0
Helderwater	1	2	1	0	0	0	0
Bungeni	3	7	4	0	0	0	0
Khansone	3	4	2	0	0	0	0
Riverplaats	0	2	1	0	0	0	0

Mohlaletsi	0	0	0	0	0	0	0	0	0	3
Seroka	0	0	0	0	0	0	0	0	0	2
Madibaneng	0	0	0	0	0	0	0	0	0	2
Radinqwane	0	0	0	0	0	0	0	0	0	2
Phaahlamaan	0	0	0	0	0	0	0	0	0	2
Mailasegone	0	0	0	0	0	0	0	0	0	2
Mphanama	0	0	0	0	0	0	0	0	0	2
Mamone	0	0	0	0	0	0	0	0	0	2
Nehabeleng	0	0	0	0	0	0	0	0	0	4
Nkoana	0	0	0	0	0	0	0	0	0	3
Ngoabe	0	0	0	0	0	0	0	0	0	2
Schoonoord	0	0	0	0	0	0	0	0	0	5
Moiplaats	0	0	0	0	0	0	0	0	0	2
Sub-total	0	0	0	0	0	0	0	0	0	157

Northern regic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Siloam	0	0	0	0	0	0	0	0	0	10
Mudimeli	0	0	0	0	0	0	0	0	0	1
Makhado	0	0	0	0	0	0	0	0	0	10
Tshikulani	0	0	0	0	0	0	0	0	0	2
Rabali	0	0	0	0	0	0	0	0	0	2
Mephephu	0	0	0	0	0	0	0	0	0	3
Straightae	0	0	0	0	0	0	0	0	0	2
Khomele	0	0	0	0	0	0	0	0	0	1
Tshawara	0	0	0	0	0	0	0	0	0	2
Matsa	0	0	0	0	0	0	0	0	0	2
Ntudimeli	0	0	0	0	0	0	0	0	0	1
Mauluma	0	0	0	0	0	0	0	0	0	2
Fondiwe	0	0	0	0	0	0	0	0	0	3
Valdezia	0	0	0	0	0	0	0	0	0	4
Kuruleni	0	0	0	0	0	0	0	0	0	3
Marseilles	0	0	0	0	0	0	0	0	0	10
Helderwater	0	0	0	0	0	0	0	0	0	4
Bungeni	0	0	0	0	0	0	0	0	0	14
Khansone	0	0	0	0	0	0	0	0	0	9
Riverplaats	0	0	0	0	0	0	0	0	0	3

Masakona	2	3	1	0	0	0	0
Nthabalala	0	1	3	0	0	0	0
Mulima	1	1	2	0	0	0	0
Muila	1	1	1	0	0	0	0
Mnwanani	1	2	1	0	0	0	0
De Hoop	2	1	2	0	0	0	0
Mashani	1	3	1	0	0	0	0
Waterval	4	0	4	0	0	0	0
Mashemba	1	2	2	0	0	0	0
Mobiles	6	4	2	0	0	0	0
Nthlaveni C	1	2	0	0	0	0	0
Mhinga	1	3	3	0	0	0	0
Nthlaveni D	1	1	1	0	0	0	0
Mtititi	1	1	1	0	0	0	0
Shingwedzi	1	1	2	0	0	0	0
Tlangelani	1	1	2	0	0	0	0
Mphambo	7	3	3	0	0	0	0
Shigalo	1	2	1	0	0	0	0
Mavambe	2	1	1	0	0	0	0
Shikundu	1	1	2	0	0	0	0
Nthlaveni E	1	1	2	0	0	0	0
D. Fraser clinic	2	3	2	0	0	0	0
Sub-total	49	72	81	0	0	2	0

Lowveld region	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	x	x	x	x	x	x	x

Central region	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	x	x	x	x	x	x	x

Total (clinics and CHCs)	101	115	239	0	0	2	0
Total (Community & Hosp OPD)	120	142	264	2	3	4	5
Total (Hosp and Comm)	290	404	483	10.6	55	22	5

Masakona	0	0	0	0	0	0	0	0	0	6
Nthabalala	0	0	0	0	0	0	0	0	0	4
Mulima	0	0	0	0	0	0	0	0	0	4
Muila	0	0	0	0	0	0	0	0	0	3
Mnwanani	0	0	0	0	0	0	0	0	0	4
De Hoop	0	0	0	0	0	0	0	0	0	5
Mashani	0	0	0	0	0	0	0	0	0	5
Waterval	0	0	0	0	0	0	0	0	0	8
Mashemba	0	0	0	0	0	0	0	0	0	5
Mobiles	0	0	0	0	0	0	0	0	0	12
Nthlaveni C	0	0	0	0	0	0	0	0	0	3
Mhinga	0	0	0	0	0	0	0	0	0	7
Nthlaveni D	0	0	0	0	0	0	0	0	0	3
Mtititi	0	0	0	0	0	0	0	0	0	3
Shingwedzi	0	0	0	0	0	0	0	0	0	4
Tlangelani	0	0	0	0	0	0	0	0	0	4
Mphambo	0	0	0	0	0	0	0	0	0	13
Shigalo	0	0	0	0	0	0	0	0	0	4
Mavambe	0	0	0	0	0	0	0	0	0	4
Shikundu	0	0	0	0	0	0	0	0	0	4
Nthlaveni E	0	0	0	0	0	0	0	0	0	4
D. Fraser clini	0	0	0	0	0	0	0	0	0	7
Sub-total	0	0	0	0	0	0	0	0	0	204

Lowveld regio	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	x	x	x	x	x	x	x	x	x	0
										0
Central region	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	x	x	x	x	x	x	x	x	x	0

Total (clinics and CHCs)	0	0	0	0	0	0	0	0	457
Total (Community & Hosp OPD)	0	0	1	0	14	1	8	1	564
Total (Hosp and Comm)	0.5	0	3.35	0	18.85	2.8	10	268	1305.1

Province	Sector	Level	Name	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Mpumalar	**Hosp Inpt**	Distr hosp								
			Witbank	x	x	x	x	x	x	x
			Rob Ferrera	0.5	1	0.5	0	0	0.2	0
			Barberton	2	1	3	0	0	0.5	0
			Shongwe	1	1	1	0.1	0	1	0
			Standerton	x	x	x	x	x	x	x
			Embhuleni	5	2	1	1	0	1	0
			Mmamethhake	2.3	2.2	1.8	0	0	2	0
			Amajuba	2	0.25	0.25	0	0	0	0
			Elise Ballot	0	0.1	0	0	0	0.2	0
			Philadelphia	3	2	3	0	0	0	0
			Themba	4	5	0	1	0	0	0
			Piet Retief	0	4	0	0	0	0	0
			Lydenburg	0	2	6	0	0	0	0
			H.A Grove	0	0.2	1	0	0	0	0
			Evander	11	18	18	1	0	0	0
Total (Hospital inpatient)				30.8	38.75	35.55	3.1	0	4.9	0

				Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Hosp OPD	Distr hosp									
			Witbank	0	0	1	1	0	0	0
			Rob Ferrera	0	2	0	0.1	0	0.1	0
			Barbeton	5	3	6	0	0	0.5	0
			Shongwe	0	0.2	0	0	0	0	0
			Standerton	x	x	x	x	x	x	x
			Embhuleni	5	2	1	0	0	0	0
			Mamethlake	0	0.1	0	0	0	0	0
			Amajuba	0	0	0	0	0	0	0
			Elise Ballot	0	0	0	0	0	0	0
			Philadelphia	x	x	x	x	x	x	x
			Themba	0	1	0	0.25	0	0	0
			Piet Retief	x	x	x	x	x	x	x
			Lydenburg	0	0	0	0	0	0	0
			H.A Grove	0	0	0	0	0	0	0

Sector	Level	Name	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
Hosp Inpt	Distr hosp	Witbank	x	x	x	x	x	x	x	x	x	0
		Rob Ferrera	0	0	0	0	0	0	0	0	0	2.2
		Barberton	0.5	0	0	0	1	1	0	0	0	9
		Shongwe	0	0	0	0	0.2	0	0	0	0	4.3
		Standerton	x	x	x	x	x	x	x	x	x	0
		Embhuleni	0	0	0	0	1	2	0	0	0	13
		Mmamethlake	0	0	0	0	7	1	0	0	0	16.3
		Amajuba	0	0	0	0	0.2	0	0	0	0	2.7
		Elise Ballot	0	0	0	0	1	0	0	0	0	1.3
		Philadelphia	0	0	0	0	1	0	0	0	0	9
		Themba	0	0	1	0	1	0.1	0	0	0	12.1
		Piet Retief	0	0	0	0	0	0	0	0	0	4
		Lydenburg	0	0	0	0	2	1	0	0	0	11
		H.A Grove	0	0	0	0	0	0	0	0	0	1.2
		Evander	0	0	0.2	0	0	0	0	0	0	48.2
Total (Hospital inpatient)			0.5	0	1.2	0	14.4	5.1	0	0	0	134.3

Hosp OPD	Distr hosp		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
		Witbank	0	0	2	0	1	0	0	0	0	5
		Rob Ferrera	0	0	0	0	0	0	0	0	0	2.2
		Barbeton	0.5	0	0.5	0	1	1	0	0	0	17.5
		Shongwe	0	0	0	0	0	0	0	0	0	0.2
		Standerton	x	x	x	x	x	x	x	x	x	0
		Embhuleni	0	0	0	0	0.2	0	0	0	0	8.2
		Mamethlake	0	0	0	0	0	0	0	3	0	0.1
		Amajuba	0	0	0	0	0	0	0	0	0	0
		Elise Ballot	0	0	0	0	0	0	0	0	0	0
		Philadelphia	x	x	x	x	x	x	x	x	x	0
		Themba	0	0	0.2	0	0.5	0	0	0	0	1.95
		Piet Retief	x	x	x	x	x	x	x	x	x	0
		Lydenburg	0	0	0	0	0	0	0	0	0	0
		H.A Grove	0	0	0	0	0	0	0	0	0	0

	Total (Hospital OPD)	10	8.3	8	1.35	0	0.6	0
Total (Hospital inpatient & OPD)		40.8	47.05	43.55	4.45	0	5.5	0

Community c	**District**	Name of clinic	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	Tonga	All clinics	0	1	0	0	0	0	0
	Sub-total		0	1	0	0	0	0	0
	Witbank	All clinics	0	1	0	0	0	0	0
	Sub-total		0	1	0	0	0	0	0
	Lydenburg	All clinics	0	1	0	1	0	0.1	0
	Sub-total		0	1	0	1	0	0.1	0
	Standerton	All clinics	0	1	0	0	0	0	0
	Sub-total		0	1	0	0	0	0	0
	Piet Retief		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		New Driefontei	0	4	0	0	0	0	0
		Old Driefontein	0	2	0	0	0	0	0
		Iswepe	0	0	0	0	0	0	0
		Mobile I	0	0	0	0	0	0	0
		Mobile II	0	0	0	0	0	0	0
		Mobile III	0	0	0	0	0	0	0
	Sub-total		0	6	0	0	0	0	0
			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	White River-	All clinics	0	3	0	0	0	0	0
		Hazyview	1	0	2	0	0	0	0
		Shabalaga	0	0	1	0	0	0	0
		Bongani	2	0	1.5	0	0	0	0
		Mthimba	0	0	0.75	0	0	0	0
		Jerusalem	1	0	0.25	0	0	0	0
		Manzini	1	0	0.75	0	0	0	0
		Legogote	1	0	1	0	0	0	0
		Mbonisweni	0	0	0.5	0	0	0	0
		Dwalisini	0	0	0.75	0	0	0	0

	Total (Hospital OPD)	0.5	0	2.7	0	2.7	1	0	3	0	35.15
Total (Hospital inpatient & OPD)		1	0	3.9	0	17.1	6.1	0	3	0	169.45

Communit	**District**	Name of clinic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Tonga	All clinics	0	0	0	0	0	0	0	0	0	1
	Sub-total		0	0	0	0	0	0	0	0	0	1
	Witbank	All clinics	0	0	0	0	0	0	0	0	0	1
	Sub-total		0	0	0	0	0	0	0	0	0	1
												0
	Lydenburg	All clinics	0	0	0	0	0	0	0	0	0	2.1
	Sub-total		0	0	0	0	0	0	0	0	0	2.1
	Standerton	All clinics	0	0	0	0	0.1	0	0	0	0	1.1
	Sub-total		0	0	0	0	0.1	0	0	0	0	1.1

	Piet Retief		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
		New Driefonte	0	0	0	0	0	0	0	0	0	4
		Old Driefontei	0	0	0	0	0	0	0	0	0	2
		Iswepe	0	0	0	0	0	0	0	0	0	0
		Mobile I	0	0	0	0	0	0	0	0	0	0
		Mobile II	0	0	0	0	0	0	0	0	0	0
		Mobile III	0	0	0	0	0	0	0	0	0	0
	Sub-total		0	0	0	0	0	0	0	0	0	6
			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	White Rive	All clinics	0	0	1	0	2	0	0	0	0	6
		Hazyview	0	0	0	0	0	0	0	0	0	3
		Shabalaga	0	0	0	0	0	0	0	0	0	1
		Bongani	0	0	0	0	0	0	0	0	0	3.5
		Mthimba	0	0	0	0	0	0	0	0	0	0.75
		Jerusalem	0	0	0	0	0	0	0	0	0	1.25
		Manzini	0	0	0	0	0	0	0	0	0	1.75
		Legogote	0	0	0	0	0	0	0	0	0	2
		Mbonisweni	0	0	0	0	0	0	0	0	0	0.5
		Dwalisini	0	0	0	0	0	0	0	0	0	0.75

	Clau-Clau	0	0	0.75	0	0	0	0
	Mafoko	0	0	0.25	0	0	0	0
	Khumbula	0	0	0.5	0	0	0	0
	Gutshwa	0	0	0.5	0	0	0	0
	White River	0	0	0.1	0	0	0	0
	Kruger Nationa	0	0	0.5	0	0	0	0
Sub-total		6	3	11.1	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Kwa-Mhlang	All clinics	0	3	0	1	0	0	0
Sub-total		0	3	0	1	0	0	0
Nelspruit	All clinics	0	3	0	0	0	0	0
Sub-total		0	3	0	0	0	0	0
Barberton	All clinics	0	1	0	0	0	0	0
Sub-total		0	1	0	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Eerstehoek-(	All clinics	0	1	0	0	0	0	0
	Tjakastad	2	0	0.2	0	0	0	0
	Mooiplaas	2	0	0.01	0	0	0	0
	Isomilani	4	0	1	0	0	0	0
	Vlakplaas	3	0	0.01	0	0	0	0
	Carolina mobile	0	0	0.01	0	0	0	0
	Badplaas mobil	1	0	0.01	0	0	0	0
	Southern clinic:	3	0	0	0	0	0	0
	Central clinics	2	0	1	0	0	0	0
	Carolina	2	0	1	0	0	0	0
	Eerstehoek	3	0	1	0	0	0	0
	Diepdale	2	0	1	0	0	0	0
	Fernie I	2	0	0.2	0	0	0	0
	Fernie II	1	0	0.2	0	0	0	0
	Mayflower	4	0	0.2	0	0	0	0
	Dundonald	12	0	0.3	0	0	0	0
	Glenmore	2	0	0.3	0	0	0	0
	Swallownest	2	0	0.2	0	0	0	0
	Betty Goed	2	0	0.01	0	0	0	0

	Clau-Clau	0	0	0	0	0	0	0	0	0	0.75
	Mafoko	0	0	0	0	0	0	0	0	0	0.25
	Khumbula	0	0	0	0	0	0	0	0	0	0.5
	Gutshwa	0	0	0	0	0	0	0	0	0	0.5
	White River	0	0	0	0	0	0	0	0	0	0.1
	Kruger Nation	0	0	0	0	0	0	0	0	0	0.5
Sub-total		0	0	1	0	2	0	0	0	0	23.1
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Kwa-Mhlan	All clinics	0	0	0	0	0	0	0	0	0	4
Sub-total		0	0	0	0	0	0	0	0	0	4
Nelspruit	All clinics	0	0	0	0	0	0	0	0	0	3
Sub-total		0	0	0	0	0	0	0	0	0	3
Barberton	All clinics	0	0	0	0	0	0	0	0	0	1
Sub-total		0	0	0	0	0	0	0	0	0	1
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Eerstehoek	All clinics	0	0	0	0	0	0	0	0	0	1
	Tjakastad	0	0	0	0	0	0	0	0	0	2.2
	Mooiplaas	0	0	0	0	0	0	0	0	0	2.01
	Isomilani	0	0	0	0	0	0	0	0	0	5
	Vlakplaas	0	0	0	0	0	0	0	0	0	3.01
	Carolina mobi	0	0	0	0	0	0	0	0	0	0.01
	Badplaas mot	0	0	0	0	0	0	0	0	0	1.01
	Southern clini	0	0	0	0	0	0	0	0	0	3
	Central clinics	0	0	0	0	0	0	0	0	0	3
	Carolina	0	0	0	0	0	0	0	0	0	3
	Eerstehoek	0	0	0	0	0	0	0	0	0	4
	Diepdale	0	0	0	0	0	0	0	0	0	3
	Fernie I	0	0	0	0	0	0	0	0	0	2.2
	Fernie II	0	0	0	0	0	0	0	0	0	1.2
	Mayflower	0	0	0	0	0	0	0	0	0	4.2
	Dundonald	0	0	0	0	0	0	0	0	0	12.3
	Glenmore	0	0	0	0	0	0	0	0	0	2.3
	Swallownest	0	0	0	0	0	0	0	0	0	2.2
	Betty Goed	0	0	0	0	0	0	0	0	0	2.01

	Hartebeeskop	3	0	0.2	0	0	0	0
	Mtlazatshe	2	0	0.01	0	0	0	0
Sub-total		54	1	6.86	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Shongwe	All clinics	0	1	0	0	0	0	0
	Jeppes reef	0	0	0.1	0	0	0	1
	Schoemansdal	0	0	0.01	0	0	0	0
	Driekoppies	0	0	0	0	0	0	0
	Middelplaas	0	0	0.1	0	0	0	0
	Phiva	0	0	0	0	0	0	0
	Langeloop	0	0	0.1	0	0	0	1
	Boschfontein	0	0	0.1	0	0	0	0
	Mzinti	0	0	0.1	0	0	1	1
	Sihlangu	0	0	0	0	0	0	0
	Mgobodi	0	0	0	0	0	0	1
	Sikhwahlane	0	0	0.1	0	0	0	0
	Kamhlishwa	0	0	0.1	0	0	0	0
	Jeppes Rust	0	0	0	0	0	0	0
	Mobiles	0	0	0	0	0	0	0
Sub-total		0	1	0.71	0	0	1	4
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Mmametlhak	All clinics	0	1	0	0	0	0	0
	Marapyane Hea	0	0	0.06	0	0	2	0
	Allemansdrift H	0	0	0.05	0	0	0	0
	Mammetlhake	0	0	0.1	0	0	0	0
	Pankop	0	0	0.2	0	0	0	0
	Mokaneng	0	0	0.1	0	0	0	0
	Seabe	0	0	0.2	0	0	0	0
	Lefisaane	0	0	0.1	0	0	0	0
	Ga-Maria	0	0	0.01	0	0	0	0
	Bloedfontein	0	0	0.1	0	0	0	0
	Troya	0	0	0.01	0	0	0	0
	Loding	0	0	0.01	0	0	0	0
	Vaalbank	0	0	0.1	0	0	4	0
	Witlaagte	0	0	0.01	0	0	0	0
	Kalkfontein	0	0	0.01	0	0	0	0

	Hartebeeskop	0	0	0	0	0	0	0	0	0	3.2
	Mtlazatshe	0	0	0	0	0	0	0	0	0	2.01
Sub-total		0	0	0	0	0	0	0	0	0	61.86
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Shongwe	All clinics	0	0	0	0	0	0	0	0	0	1
	Jeppes reef	0	0	0	0	0	0	0	0	0	1.1
	Schoemansda	0	0	0	0	0	0	0	0	0	0.01
	Driekoppies	0	0	0	0	0	0	0	0	0	0
	Middelplaas	0	0	0	0	0	0	0	0	0	0.1
	Phiva	0	0	0	0	0	0	0	0	0	0
	Langeloop	0	0	0	0	0	0	0	0	0	1.1
	Boschfontein	0	0	0	0	0	0	0	0	0	0.1
	Mzinti	0	0	0	0	0	0	0	0	0	2.1
	Sihlangu	0	0	0	0	0	0	0	0	0	0
	Mgobodi	0	0	0	0	0	0	0	0	0	1
	Sikhwahlane	0	0	0	0	0	0	0	0	0	0.1
	Kamhlishwa	0	0	0	0	0	0	0	0	0	0.1
	Jeppes Rust	0	0	0	0	0	0	0	0	0	0
	Mobiles	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	0	0	0	0	0	6.71
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Mmametlha	All clinics	0	0	0	1	0	0	0	0	0	2
	Marapyane He	0	0	0	0	0	0	0	0	0	2.06
	Allemansdrift	0	0	0	0	2	0	0	0	0	2.05
	Mammetlhake	0	0	0	0	0	0	0	0	0	0.1
	Pankop	0	0	0	0	0	0	0	0	0	0.2
	Mokaneng	0	0	0	0	0	0	0	0	0	0.1
	Seabe	0	0	0	0	0	0	0	0	0	0.2
	Lefisaane	0	0	0	0	0	0	0	0	0	0.1
	Ga-Maria	0	0	0	0	0	0	0	0	0	0.01
	Bloedfontein	0	0	0	0	0	0	0	0	0	0.1
	Troya	0	0	0	0	0	0	0	0	0	0.01
	Loding	0	0	0	0	0	0	0	0	0	0.01
	Vaalbank	0	0	0	0	0	0	0	0	0	4.1
	Witlaagte	0	0	0	0	0	0	0	0	0	0.01
	Kalkfontein	0	0	0	0	0	0	0	0	0	0.01

	Mobile: Allema	0	0	0	0	0	0	0
	Mobile: Mmam	0	0	0	0	0	0	0
Sub-total		0	1	1.06	0	0	6	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Volksrust	Joubert st	0	0.25	0.25	0	0	0	1
	Hoop str Perde	0	0	0.25	0	0	0	1
	Wakkerstroom	0	0	0.12	0	0	0	0
	Schoon st	0	0	0.12	0	0	0	1
	Vukuzakhe	0	0.12	0	0	0	0	1
	Amajuba mem	0	0	0.12	0	0	0	0
	Amersfoort	0	0	0.12	0	0	0	0
	Enamakhule	0	0	0.12	0	0	0	0
Sub-total		0	0.37	1.1	0	0	0	4
Secunda	All clinics	0	1	0.1	0	0	0	0
Sub-total		0	1	0.1	0	0	0	0
Total (Community clinics and CHCs)		60	24.37	20.93	2	0	7.1	8
Total (Community and Hosp OPD))		70	32.67	28.93	3.35	0	7.7	8
Total (Hosp and Community)		100.8	71.42	64.48	6.45	0	12.6	8

Province	**Sector**	**Level**	**Name**						
N. West	**Hosp Inpt**			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Psych Hosp	Bophelong	6	35	1	1	4	1	0
		Sub-total		6	35	1	1	4	1	0
		Gen hosp	Potchefstroom	3	6	3	0	0	0.5	0
			Odi	3	0	1	0	0	0	0
			George Stegm	0	1	0	0	0	0	0
			Tshwaragano	2	2	2	0	0	1	0
		Sub-total		8	9	6	0	0	1.5	0
		Distr hosp	Jubilee	4	6	0	1	1	1	1
			Thusong	4	4	5	0	1	1	0

	Mobile: Allem	0	0	0	0	0	0	0	0	0	0
	Mobile: Mmar	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	1	2	0	0	0	0	11.06
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Volksrust	Joubert st	0	0	0	0	0	0	0	0	0	1.5
	Hoop str Perd	0	0	0	0	0.1	0	0	0	0	1.35
	Wakkerstroon	0	0	0	0	0	0	0	0	0	0.12
	Schoon st	0	0	0	0	0.12	0	0	0	0	1.24
	Vukuzakhe	0	0	0	0	0	0	0	0	0	1.12
	Amajuba men	0	0	0	0	0.2	0	0	0	0	0.32
	Amersfoort	0	0	0	0	0	0	0	0	0	0.12
	Enamakhule	0	0	0	0	0	0	0	0	0	0.12
Sub-total		0	0	0	0	0.42	0	0	0	0	5.89
Secunda	All clinics	0	0	0	0	0	0	0	0	0	1.1
Sub-total		0	0	0	0	0	0	0	0	0	1.1
Total (Community clinics and CHCs)		0	0	1	1	4.52	0	0	0	0	128.92
Total (Community and Hosp OPD))		0.5	0	3.7	1	7.22	1	0	3	0	164.07
Total (Hosp and Community)		1	0	4.9	1	21.62	6.1	0	3	0	298.37

Sector	**Level**	**Name**									
Hosp Inpt			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Psych Hosp	Bophelong	0	1	0	0	3	0	0	0	0	52
	Sub-total		0	1	0	0	3	0	0	0	0	52
												0
	Gen hosp	Potchefstroon	0.25	0	0.2	0	0.2	0.1	0	0	0	13.25
		Odi	0	0	0.1	0	2	1	0	4	4	7.1
		George Stegn	0	0	0	0	1	1	5	0	0	8
		Tshwaragano	0	0	0	0	1	1	0	0	0	9
	Sub-total		0.25	0	0.3	0	4.2	3.1	5	4	4	37.35
	Distr hosp	Jubilee	0	0	0	0	1	3	7	8	4	25
		Thusong	0	0	0	0	1	0.2	0	0	0	16.2

	Ge. De la Rey	0	0.1	0.1	0	0	0	0
Sub-total		8	10.1	5.1	1	2	2	1
Total (Hospital Inpatients)		22	54.1	12.1	2	6	4.5	1

Hospital OPD		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Psych Hosp	Bophelong	1	2	0	0	0	0	0
Sub-total		1	2	0	0	0	0	0
Gen hosp	Potchefstroom	2	2	2	2	0	2	0
	Odi	3	0	1	0	0	0	0
	George Stegma	0	1	0	0	0	0	0
	Tshwaragano	2	2	2	0	0	1	0
Sub-total		7	5	5	2	0	3	0
Distr hosp	Jubilee	0	3	0	1	1	1	1
	Thusong	2	1	3	0	0	1	0
	Ge. De la Rey	0	0	0	0	0	0	0
Sub-total		2	4	3	1	1	2	1
Total (Hospital OPD)		10	11	8	3	1	5	1
Total (Hospital Inpatient & OPD)		32	65.1	20.1	5	7	9.5	2

Community c District	Name of clinic	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Mogwase	"33 clinics"	1	4	3	0	0	3	0
	Mobile clinics	0	1	1	0	0	0	0
	Mogwase Healt	0	1	0	0	0	1	0
Sub-total		1	6	4	0	0	4	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Ganyesa	"13 clinics"	3	1	1.3	0	0	0	0
	Tlakgang	0	0	0	0	0	0	0

	Ge. De la Rey	0	0	0	0	0.1	0	0	0	0	0.3
Sub-total		0	0	0	0	2.1	3.2	7	8	4	41.5
Total (Hospital Inpatients)		0.25	1	0.3	0	9.3	6.3	12	12	8	130.85

Hospital OPD		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Psych Hosp	Bophelong	0	0	0	0	1	0	0	0	0	4
Sub-total		0	0	0	0	1	0	0	0	0	4
											0
Gen hosp	Potchefstroom	1	0	1	0	2	1	0	0	0	15
	Odi	0	0	0.1	0	2	1	0	4	4	7.1
	George Stegn	0	0	0	0	1	1	5	0	0	8
	Tshwaragano	0	0	0	0	1	1	0	0	0	9
Sub-total		1	0	1.1	0	6	4	5	4	4	39.1
Distr hosp	Jubilee	0	0	0	0	1	0.7	0.7	1	0	9.4
	Thusong	0	0	0	0	0.5	0.2	0	0	0	7.7
	Ge. De la Rey	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	1.5	0.9	0.7	1	0	17.1
Total (Hospital OPD)		1	0	1.1	0	8.5	4.9	5.7	5	4	60.2
Total (Hospital Inpatient & OPD)		1.25	1	1.4	0	17.8	11.2	17.7	17	12	191.05

Communit	**District**	Name of clinic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Mogwase	"33 clinics"	0	0	0	0	3	3	0	0	0	17
		Mobile clinics	0	0	0	0	0	1	0	0	0	3
		Mogwase Hea	0	0	0	0	2	0	2	0	0	6
Sub-total			0	0	0	0	5	4	2	0	0	26
			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Ganyesa	"13 clinics"	0	0	0	0	0	2	0	0	0	7.3
		Tlakgang	0	0	0	0	0	0	0	0	0	0

	Morokung	0	0	0	0	0	0	0
	Kgokgajane	0	0	0	0	0	0	0
	Kgokgole	0	0	0	0	0	0	0
	Eckron	0	0	0	0	0	0	0
	Tlopeng	0	0	0	0	0	0	0
	Tseage	0	0	0	0	0	0	0
	Kokoga	0	0	0	0	0	0	0
Sub-total		3	1	1.3	0	0	0	0
Klerksdorp	"17 clinics"	0	2	0	0	0	0.1	0
Sub-total		0	2	0	0	0	0.1	0
Vryburg	"14 clinics"	0	1.5	0.2	0	0	0	0
	Stella	0	0	0	0	0	0	0
	Lavuma	0	0	0	0	0	0	0
	Bithakwana	0	0	0	0	0	0	0
	Bevondale	0	0	0	0	0	0	0
	Lykso	0	0	0	0	0	0	0
	Colridge	0	0	0	0	0	0	0
Sub-total		0	1.5	0.2	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Rustenburg								
	"1 Urban"	0	0.67	0	0	0	0	0
	"7 Peri-urban"	0	0.67	0	0	0	0	0
	"11 Rural"	0	0.67	0	0	0	0	0
Sub-total		0	2.01	0	0	0	0	0
Kudumane	Kagisho	0.5	0.25	0	0	0	0.25	0
	Loopen	0.5	0.25	0	0	0	0.25	0
	Ben Del	0.5	0.25	0	0	0	0.25	0
	Kamden	0.5	0.25	0	0	0	0.25	0
Sub-total		2	1	0	0	0	1	0
Schweizer-R	"7 clinics"	0	1	0	0	0	1	0
	Town clinic	0	0	0	0	0	0	0
	Iperegeng	0	0	0	0	0	0	0

	Morokung	0	0	0	0	0	0	0	0	0	0
	Kgokgajane	0	0	0	0	0	0	0	0	0	0
	Kgokgole	0	0	0	0	0	0	0	0	0	0
	Eckron	0	0	0	0	0	0	0	0	0	0
	Tlopeng	0	0	0	0	0	0	0	0	0	0
	Tseage	0	0	0	0	0	0	0	0	0	0
	Kokoga	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	0	2	0	0	0	7.3
Klerksdorp	"17 clinics"	0.2	0	0.1	0	0	0.1	0	0	0	2.5
Sub-total		0.2	0	0.1	0	0	0.1	0	0	0	2.5
											0
Vryburg	"14 clinics"	0	0	0	0	0.1	0.2	0	0	0	2
	Stella	0	0	0	0	0	0	0	0	0	0
	Lavuma	0	0	0	0	0	0	0	0	0	0
	Bithakwana	0	0	0	0	0	0	0	0	0	0
	Bevondale	0	0	0	0	0	0	0	0	0	0
	Lykso	0	0	0	0	0	0	0	0	0	0
	Colridge	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	0.1	0.2	0	0	0	2
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Rustenburg											
	"1 Urban"	0	0	0	0	0.33	0	0	0	0	1
	"7 Peri-urban"	0	0	0	0	0.33	0	0	0	0	1
	"11 Rural"	0	0	0	0	0.33	0	0	0	0	1
Sub-total		0	0	0	0	0.99	0	0	0	0	3
Kudumane	Kagisho	0	0	0	0	0.25	0.25	0	0	0	1.5
	Loopen	0	0	0	0	0.25	0.25	0	0	0	1.5
	Ben Del	0	0	0	0	0.25	0.25	0	0	0	1.5
	Kamden	0	0	0	0	0.25	0.25	0	0	0	1.5
Sub-total		0	0	0	0	1	1	0	0	0	6
Schweizer-I	"7 clinics"	0	0	0	0	1	1	0	0	0	4
	Town clinic	0	0	0	0	0	0	0	0	0	0
	Iperegeng	0	0	0	0	0	0	0	0	0	0

	Amalia	0	0	0	0	0	0	0
	Christiaan	0	0	0	0	0	0	0
	Bloemhof	0	0	0	0	0	0	0
Sub-total		0	1	0	0	0	1	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Ventersdorp	7 clinics, 4 mot	3	1	3	0	0	2	0
	Ventersdorp Cl	0	0	0	0	0	0	0
	Gateway	0	0	0	0	0	0	0
	Tshing	0	0	0	0	0	0	0
	Mobile I	0	0	0	0	0	0	0
	Mobile II	0	0	0	0	0	0	0
	Mobile III	0	0	0	0	0	0	0
	Mobile IV	0	0	0	0	0	0	0
	Ga-Motlatla	0	0	0	0	0	0	0
	Doornkop	0	0	0	0	0	0	0
	Goedgeronde	0	0	0	0	0	0	0
	Mogopa	0	0	0	0	0	0	0
Sub-total		3	1	3	0	0	2	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Moretele-Cyverkuil								
	Makopanstad	1.2	1.4	0	0	0	0	0
	Mathambo	1.2	1.4	0	0	0	0	0
	Tlakstad	1.2	1.4	0	0	0	0	0
	Kgomakgoma	1.2	1.4	0	0	0	0	0
	Thukwe	1.2	1.4	0	0	0	0	0
Sub-total		6	7	0	0	0	0	0
Moretele-Cyverkuil								
	Kutlwanong	0.2	0.3	0.1	0	0	0.1	0
	Lebotloane	0.2	0.3	0.1	0	0	0.1	0
	Moretele	0.2	0.3	0.1	0	0	0.1	0
	Dikebu	0.2	0.3	0.1	0	0	0.1	0
Sub-total		0.8	1.2	0.4	0	0	0.4	0
Moretele								

	Amalia	0	0	0	0	0	0	0	0	0	0
	Christiaan	0	0	0	0	0	0	0	0	0	0
	Bloemhof	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	1	1	0	0	0	4
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Ventersdor	7 clinics, 4 mc	0	0	0	0	4	1	0	0	0	14
	Ventersdorp C	0	0	0	0	0	0	0	0	0	0
	Gateway	0	0	0	0	0	0	0	0	0	0
	Tshing	0	0	0	0	0	0	0	0	0	0
	Mobile I	0	0	0	0	0	0	0	0	0	0
	Mobile II	0	0	0	0	0	0	0	0	0	0
	Mobile III	0	0	0	0	0	0	0	0	0	0
	Mobile IV	0	0	0	0	0	0	0	0	0	0
	Ga-Motlatla	0	0	0	0	0	0	0	0	0	0
	Doornkop	0	0	0	0	0	0	0	0	0	0
	Goedgeronde	0	0	0	0	0	0	0	0	0	0
	Mogopa	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	4	1	0	0	0	14
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Moretele-Cyverkuil											
	Makopanstad	0	0	0	0	0	0	0	0	0	2.6
	Mathambo	0	0	0	0	0	0	0	0	0	2.6
	Tlakstad	0	0	0	0	0	0	0	0	0	2.6
	Kgomakgoma	0	0	0	0	0	0	0	0	0	2.6
	Thukwe	0	0	0	0	0	0	0	0	0	2.6
Sub-total		0	0	0	0	0	0	0	0	0	13
Moretele-Cyverkuil											
	Kutlwanong	0	0	0	0	0.1	0.1	0	0	0	0.9
	Lebotloane	0	0	0	0	0.1	0.1	0	0	0	0.9
	Moretele	0	0	0	0	0.1	0.1	0	0	0	0.9
	Dikebu	0	0	0	0	0.1	0.1	0	0	0	0.9
Sub-total		0	0	0	0	0.4	0.4	0	0	0	3.6
Moretele											

	Refontse	2	1	2.5	0	0	0.5	0.5
	Gamotle	2	1	1	0	0	0	0
	Mogogeko	2	0	1	0	0	0	0
	Ratjiepan	2	1	1	0	0	0	0
	Dilopye	1	0	1	0	0	0	0
Sub-total		9	3	6.5	0	0	0.5	0.5
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Moretele-Temba								
	Selepe	0	0.17	0.08	0	0	0	0
	Dipethane	0	0.17	0.08	0	0	0	0
	Mukubyana	0	0.17	0.08	0	0	0	0
	Ruigdestaat	0	0.17	0.08	0	0	0	0
	Ballontlokoa	0	0.17	0.08	0	0	0	0
	Moroki	0	0.17	0.08	0	0	0	0
	Tlamane	0	0.17	0.08	0	0	0	0
	Dr Greus	0	0.17	0.08	0	0	0	0
	Tholse	0	0.17	0.08	0	0	0	0
	Slagboom	0	0.17	0.08	0	0	0	0
	Olvertrou	0	0.17	0.08	0	0	0	0
	Lefathlang	0	0.17	0.08	0	0	0	0
Sub-total		0	2.04	0.96	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Moretele								
	Bosplaas	2	2	5	0	0	0	5
	Kekanastad	2	2	6	0	0	0	3
	Temba	4	2	5	0	0	0	5
	Ramotse	2	1	2	0	0	0	6
	Babelezi	1	0	2	0	0	0	0
	Maubane	2	0	2	0	0	0	7
Sub-total		13	7	22	0	0	0	26
Potchefstroom								
	"22 clinics"	0	2	0	0	0	2	0
Sub-total		0	2	0	0	0	2	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Lichtenburg								

	Refontse	0	0	0	0	0	0	0	0	0	6.5
	Gamotle	0	0	0	0	0	0	0	0	0	4
	Mogogeko	0	0	0	0	0	0	0	0	0	3
	Ratjiepan	0	0	0	0	0	0	0	0	0	4
	Dilopye	0	0	0	0	0	0	0	0	0	2
Sub-total		0	0	0	0	0	0	0	0	0	19.5
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Moretele-Temba											
	Selepe	0	0	0	0	0	0	0	0	0	0.25
	Dipethane	0	0	0	0	0	0	0	0	0	0.25
	Mukubyana	0	0	0	0	0	0	0	0	0	0.25
	Ruigdestaat	0	0	0	0	0	0	0	0	0	0.25
	Ballontlokoa	0	0	0	0	0	0	0	0	0	0.25
	Moroki	0	0	0	0	0	0	0	0	0	0.25
	Tlamane	0	0	0	0	0	0	0	0	0	0.25
	Dr Greus	0	0	0	0	0	0	0	0	0	0.25
	Tholse	0	0	0	0	0	0	0	0	0	0.25
	Slagboom	0	0	0	0	0	0	0	0	0	0.25
	Olvertrou	0	0	0	0	0	0	0	0	0	0.25
	Lefathlang	0	0	0	0	0	0	0	0	0	0.25
Sub-total		0	0	0	0	0	0	0	0	0	3
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Moretele											
	Bosplaas	0	0	0	0	0	0	0	0	0	14
	Kekanastad	0	0	0	0	0	0	0	0	0	13
	Temba	0	0	0	0	0	0	0	0	0	16
	Ramotse	0	0	0	0	0	0	0	0	0	11
	Babelezi	0	0	0	0	0	0	0	0	0	3
	Maubane	0	0	0	0	0	0	0	0	0	11
Sub-total		0	0	0	0	0	0	0	0	0	68
Potchefstroom											
	"22 clinics"	0	2	1	0	2	1	0	0	0	10
Sub-total		0	2	1	0	2	1	0	0	0	10
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Lichtenburg											

	Bodibe	0	0.22	0	0	0	0	0
	Polyclinic	0	0.22	0	0	0	0	0
	Itsoseng	0	0.22	0	0	0	0	0
	Matshepe	0	0.22	0	0	0	0	0
	Dithwaneng	0	0.22	0	0	0	0	0
	Verdwaal	0	0.22	0	0	0	0	0
	Phatsima	0	0.22	0	0	0	0	0
	Bethel	0	0.22	0	0	0	0	0
	Matile II	0	0.22	0	0	0	0	0
	Lichtenburg I	0	0.11	0	0	0	0	0
	Lichtenburg II	0	0.11	0	0	0	0	0
	Lichtenburg III	0	0.11	0	0	0	0	0
	Lichtenburg IV	0	0.11	0	0	0	0	0
	Lichtenburg V	0	0.11	0	0	0	0	0
	Blydeville	0	0.11	0	0	0	0	0
	Biesiesvlei	0	0.11	0	0	0	0	0
	Coligny I	0	0.11	0	0	0	0	0
	Coligny II	0	0.11	0	0	0	0	0
Sub-total		0	2.97	0	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Odi								
	Boekenhout	0	0.1	0	0	0	0	0
	Buffelsdooring	0	0.1	0	0	0	0	0
	Hebron	0	0.1	0	0	0	0	0
	Hoekfontein	0	0.1	0	0	0	0	0
	Ikhutseng	0	0.1	0	0	0	0	0
	Jericho	0	0.1	0	0	0	0	0
	Kgabo	0	0.1	0	0	0	0	0
	Kgabalatsane	0	0.1	0	0	0	0	0
	Kromkuil	0	0.1	0	0	0	0	0
	Maboloka	0	0.1	0	0	0	0	0
	Madibi	0	0.1	0	0	0	0	0
	Phedisong I	0	0.1	0	0	0	0	0
	Phedisong IV	0	0.1	0	0	0	0	0
	Phedisong VI	0	0.1	0	0	0	0	0
	Rabokala	0	0.1	0	0	0	0	0

	Bodibe	0	0	0	0	0	0	0	0	0	0.22
	Polyclinic	0	0	0	0	0	0	0	0	0	0.22
	Itsoseng	0	0	0	0	0	0	0	0	0	0.22
	Matshepe	0	0	0	0	0	0	0	0	0	0.22
	Dithwaneng	0	0	0	0	0	0	0	0	0	0.22
	Verdwaal	0	0	0	0	0	0	0	0	0	0.22
	Phatsima	0	0	0	0	0	0	0	0	0	0.22
	Bethel	0	0	0	0	0	0	0	0	0	0.22
	Matile II	0	0	0	0	0	0	0	0	0	0.22
	Lichtenburg I	0	0	0	0	0	0	0	0	0	0.11
	Lichtenburg II	0	0	0	0	0	0	0	0	0	0.11
	Lichtenburg III	0	0	0	0	0	0	0	0	0	0.11
	Lichtenburg IV	0	0	0	0	0	0	0	0	0	0.11
	Lichtenburg V	0	0	0	0	0	0	0	0	0	0.11
	Blydeville	0	0	0	0	0	0	0	0	0	0.11
	Biesiesvlei	0	0	0	0	0	0	0	0	0	0.11
	Coligny I	0	0	0	0	0	0	0	0	0	0.11
	Coligny II	0	0	0	0	0	0	0	0	0	0.11
Sub-total		0	0	0	0	0	0	0	0	0	2.97
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Odi											
	Boekenhout	0	0	0	0	0	0	0	0	0	0.1
	Buffelsdooring	0	0	0	0	0	0	0	0	0	0.1
	Hebron	0	0	0	0	0	0	0	0	0	0.1
	Hoekfontein	0	0	0	0	0	0	0	0	0	0.1
	Ikhutseng	0	0	0	0	0	0	0	0	0	0.1
	Jericho	0	0	0	0	0	0	0	0	0	0.1
	Kgabo	0	0	0	0	0	0	0	0	0	0.1
	Kgabalatsane	0	0	0	0	0	0	0	0	0	0.1
	Kromkuil	0	0	0	0	0	0	0	0	0	0.1
	Maboloka	0	0	0	0	0	0	0	0	0	0.1
	Madibi	0	0	0	0	0	0	0	0	0	0.1
	Phedisong I	0	0	0	0	0	0	0	0	0	0.1
	Phedisong IV	0	0	0	0	0	0	0	0	0	0.1
	Phedisong VI	0	0	0	0	0	0	0	0	0	0.1
	Rabokala	0	0	0	0	0	0	0	0	0	0.1

	Repentse	0	0.1	0	0	0	0	0
	Sedilega	0	0.1	0	0	0	0	0
	Soutpanslaagte	0	0.1	0	0	0	0	0
	Tlamelong	0	0.1	0	0	0	0	0
	Winterveldt	0	0.1	0	0	0	0	0
	Mobiles	0	0.1	0	0	0	0	0
Sub-total		0	2.1	0	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Brits	"11 clincs"	1	1	2	0	0	1	0
Delareyville	"20 clinics"	2	1	3	0	0	1	0
Mafikeng	"29 clinics"	2	1	3	0	0	1	0
Taung	"20 clinics"	2	1	3	0	0	1	0
Wolmaranss	"6 clinics"	0	1	1	0	0	1	0
Zeerust	"18 clinics"	1	2	2	0	0	1	0
Sub-total		8	7	14	0	0	6	0
Total (Clinics and CHCs)		45.8	49.82	52.36	0	0	17	26.5
Total (Clinics and Hosp OPD)		55.8	60.82	60.36	3	1	22	27.5
Total (Hosp and Community)		77.8	114.92	72.46	5	7	26.5	28.5

Province	**Sector**	**Level**	**Name**						
Free State	**Hosp Inpt**			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Psych Hosp	Poloko (Psych)	18	30	14	4	0	0	0
			Oranje	18	128	4	6	8	6	2
		Sub-total		36	158	18	10	8	6	2
		Gen hosp	Manapo	8	5	1	1	0	2	0
			Pelonomi	0	2	0	1	0	1	0
			Boitumelo	4	3	2	1	0	1	0
			National	0	0	0	0	0	0	0
			Universitas	0	0	0	0	0	0	0
		Sub-total		12	10	3	3	0	4	0
		Distr hosp	Moroko	x	x	x	x	x	x	x

	Repentse	0	0	0	0	0	0	0	0	0	0.1
	Sedilega	0	0	0	0	0	0	0	0	0	0.1
	Soutpanslaag	0	0	0	0	0	0	0	0	0	0.1
	Tlamelong	0	0	0	0	0	0	0	0	0	0.1
	Winterveldt	0	0	0	0	0	0	0	0	0	0.1
	Mobiles	0	0	0	0	0	0	0	0	0	0.1
Sub-total		0	0	0	0	0	0	0	0	0	2.1
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Brits	"11 clincs"	0	0	0	0	1	2	0	0	0	8
Delareyville	"20 clinics"	0	0	0	0	1	2	0	0	0	10
Mafikeng	"29 clinics"	0	0	0	0	1	2	0	0	0	10
Taung	"20 clinics"	0	0	0	0	1	2	0	0	0	10
Wolmarans	"6 clinics"	0	0	0	0	1	2	0	0	0	6
Zeerust	"18 clinics"	1	0	0	0	1	2	0	0	0	10
Sub-total		1	0	0	0	6	12	0	0	0	54
Total (Clinics and CHCs)		1.2	2	1.1	0	20.49	22.7	2	0	0	240.97
Total (Clinics and Hosp OPD)		2.2	2	2.2	0	28.99	27.6	7.7	5	4	301.17
Total (Hosp and Community)		2.45	3	2.5	0	38.29	33.9	19.7	17	12	432.02

Sector	**Level**	**Name**										
Hosp Inpt			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Psych Hosp	Poloko (Psych	0	0	1	0	1	1	0	102	30	69
		Oranje	0	0	0	0	1	0	0	235	4	173
	Sub-total		0	0	1	0	2	1	0	337	34	242
	Gen hosp	Manapo	0	1	0	0	1	1	1	9	0	21
		Pelonomi	1	1	1	0	0	0	0	0	0	7
		Boitumelo	0	0	0	0	1	4	2	0	0	18
		National	0	0	0	0	0	0	0	0	0	0
		Universitas	0	0	0	0	0	0	0	0	0	0
	Sub-total		1	2	1	0	2	5	3	9	0	46
	Distr hosp	Moroko	x	x	x	x	x	x	x	x	x	0

	Zastron	0	0	0	0	0	0	0
	Odendaalsrus	x	x	x	x	x	x	x
	Heilbron	x	x	x	x	x	x	x
	Sasolburg	x	x	x	x	x	x	x
	Parys	x	x	x	x	x	x	x
	Reitz	0	0	0	0	0	0	0
	Clocolan	x	x	x	x	x	x	x
	Senekal	x	x	x	x	x	x	x
	Botshabelo	x	x	x	x	x	x	x
Sub-total		0	0	0	0	0	0	0
Total (Hospital Inpatient staff)		48	168	21	13	8	10	2

Hospital OPD		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Psych Hosp	Poloko (Psych)	0	0	0	0	0	0	0
	Oranje	0	8	0	0	0	0	0
Sub-total		0	8	0	0	0	0	0
Gen hosp	Manapo	x	x	x	x	x	x	x
	Pelonomi	x	x	x	x	x	x	x
	Boitumelo	0	0	0	0	0	0	0
	National	x	x	x	x	x	x	x
	Universitas	0	0	0	0	0	0	0
Sub-total		0	0	0	0	0	0	0
Distr hosp	Moroko	x	x	x	x	x	x	x
	Zastron	0	0	0	0	0	0	0
	Odendaalsrus	x	x	x	x	x	x	x
	Heilbron	x	x	x	x	x	x	x
	Sasolburg	x	x	x	x	x	x	x
	Parys	x	x	x	x	x	x	x
	Reitz	0	0	0	0	0	0	0
	Clocolan	x	x	x	x	x	x	x
	Senekal	x	x	x	x	x	x	x
	Botshabelo	x	x	x	x	x	x	x
Sub-total		0	0	0	0	0	0	0

	Zastron	0	0	0	0	0	0	0	0	0	0	0	0
	Odendaalsrus	x	x	x	x	x	x	x	x	x	x	x	0
	Heilbron	x	x	x	x	x	x	x	x	x	x	x	0
	Sasolburg	x	x	x	x	x	x	x	x	x	x	x	0
	Parys	x	x	x	x	x	x	x	x	x	x	x	0
	Reitz	0	0	0	0	0	0	0	0	0	0	0	0
	Clocolan	x	x	x	x	x	x	x	x	x	x	x	0
	Senekal	x	x	x	x	x	x	x	x	x	x	x	0
	Botshabelo	x	x	x	x	x	x	x	x	x	x	x	0
	Sub-total	0	0	0	0	0	0	0	0	0	0	0	0
Total (Hospital Inpatient staff)		1	2	2	0	4	6	3	346	34	288		

Hospital OPD		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Psych Hosp	Poloko (Psych	0	0	0	0	0	0	0	0	0	0
	Oranje	0	0	0	0	0	0	0	2	4	8
	Sub-total	0	0	0	0	0	0	0	2	4	8
Gen hosp	Manapo	x	x	x	x	x	x	x	x	x	0
	Pelonomi	x	x	x	x	x	x	x	x	x	0
	Boitumelo	0	0	0	0	0	0	0	0	0	0
	National	x	x	x	x	x	x	x	x	x	0
	Universitas	0	0	0	0	0	0	0	0	0	0
	Sub-total	0	0	0	0	0	0	0	0	0	0
Distr hosp	Moroko	x	x	x	x	x	x	x	x	x	0
	Zastron	0	0	0	0	0	0	0	0	0	0
	Odendaalsrus	x	x	x	x	x	x	x	x	x	0
	Heilbron	x	x	x	x	x	x	x	x	x	0
	Sasolburg	x	x	x	x	x	x	x	x	x	0
	Parys	x	x	x	x	x	x	x	x	x	0
	Reitz	0	0	0	0	0	0	0	0	0	0
	Clocolan	x	x	x	x	x	x	x	x	x	0
	Senekal	x	x	x	x	x	x	x	x	x	0
	Botshabelo	x	x	x	x	x	x	x	x	x	0
	Sub-total	0	0	0	0	0	0	0	0	0	0

Total (Hospital OPD)	0	8	0	0	0	0	0
Total (Hosp Inpt & OPD)	48	176	21	13	8	10	2

Community c	**Region**	Name of clinic	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	A	All clinics	0	2	0	0	0	0	0
		Aandrus	x	x	x	x	x	x	x
		Clinic B	x	x	x	x	x	x	x
		Clinic C	x	x	x	x	x	x	x
		Clinic D	x	x	x	x	x	x	x
		Clinic E	x	x	x	x	x	x	x
		Clinic J	x	x	x	x	x	x	x
		Clinic K	x	x	x	x	x	x	x
		Clinic N	x	x	x	x	x	x	x
		Clinic U	x	x	x	x	x	x	x
		Industrial	x	x	x	x	x	x	x
		Mafane	x	x	x	x	x	x	x
		Gaongalelwe	x	x	x	x	x	x	x
		Mokoena	x	x	x	x	x	x	x
		Dinaane	x	x	x	x	x	x	x
		Thaba Nchu	x	x	x	x	x	x	x
		Poly clinic	x	x	x	x	x	x	x
		Phetogo	x	x	x	x	x	x	x
		Tweefontein	x	x	x	x	x	x	x
		Klipfontein	x	x	x	x	x	x	x
		Tiger River	x	x	x	x	x	x	x
		Kgalala	x	x	x	x	x	x	x
		Sediba	x	x	x	x	x	x	x
		Seadimo	x	x	x	x	x	x	x
		Mobile	x	x	x	x	x	x	x
		Bainsvlei	x	x	x	x	x	x	x
		Bloemspruit	x	x	x	x	x	x	x
		Baltho	x	x	x	x	x	x	x
		Rocklands	x	x	x	x	x	x	x
		Heidedal	x	x	x	x	x	x	x
		Brandfort	x	x	x	x	x	x	x
		Soutpan	x	x	x	x	x	x	x

Total (Hospital OPD)	0	0	0	0	0	0	0	2	4	8
Total (Hosp Inpt & OPD)	1	2	2	0	4	6	3	348	38	296

Communit	**Region**	Name of clinic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	A	All clinics	0	0	0	0	0	0	0	0	0	2
		Aandrus	x	x	x	x	x	x	x	x	x	0
		Clinic B	x	x	x	x	x	x	x	x	x	0
		Clinic C	x	x	x	x	x	x	x	x	x	0
		Clinic D	x	x	x	x	x	x	x	x	x	0
		Clinic E	x	x	x	x	x	x	x	x	x	0
		Clinic J	x	x	x	x	x	x	x	x	x	0
		Clinic K	x	x	x	x	x	x	x	x	x	0
		Clinic N	x	x	x	x	x	x	x	x	x	0
		Clinic U	x	x	x	x	x	x	x	x	x	0
		Industrial	x	x	x	x	x	x	x	x	x	0
		Mafane	x	x	x	x	x	x	x	x	x	0
		Gaongalelwe	x	x	x	x	x	x	x	x	x	0
		Mokoena	x	x	x	x	x	x	x	x	x	0
		Dinaane	x	x	x	x	x	x	x	x	x	0
		Thaba Nchu	x	x	x	x	x	x	x	x	x	0
		Poly clinic	x	x	x	x	x	x	x	x	x	0
		Phetogo	x	x	x	x	x	x	x	x	x	0
		Tweefontein	x	x	x	x	x	x	x	x	x	0
		Klipfontein	x	x	x	x	x	x	x	x	x	0
		Tiger River	x	x	x	x	x	x	x	x	x	0
		Kgalala	x	x	x	x	x	x	x	x	x	0
		Sediba	x	x	x	x	x	x	x	x	x	0
		Seadimo	x	x	x	x	x	x	x	x	x	0
		Mobile	x	x	x	x	x	x	x	x	x	0
		Bainsvlei	x	x	x	x	x	x	x	x	x	0
		Bloemspruit	x	x	x	x	x	x	x	x	x	0
		Baltho	x	x	x	x	x	x	x	x	x	0
		Rocklands	x	x	x	x	x	x	x	x	x	0
		Heidedal	x	x	x	x	x	x	x	x	x	0
		Brandfort	x	x	x	x	x	x	x	x	x	0
		Soutpan	x	x	x	x	x	x	x	x	x	0

	Verkeerdevlei	x	x	x	x	x	x	x
	Lugenhoverpar	x	x	x	x	x	x	x
Sub-total		0	2	0	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
B	All clinics	x	x	x	x	x	x	x
Sub-total		0	0	0	0	0	0	0
C	Mobiles	0	1	2	0	0	0	0
	Bothaville	0	0	0	0	0	0	0
	Kgotsong	0	0	0	0	0	0	0
	K Maile	0	7	11	0	0	0	0
Sub-total		0	8	13	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
D	All clinics	0	2	0	0	0	0	0
	Vtrkkr Clinic	x	x	x	x	x	x	x
	Viljkroon PHC	x	x	x	x	x	x	x
	Rammolutsi	x	x	x	x	x	x	x
	Viljkroon LA	x	x	x	x	x	x	x
	Ngwathe	x	x	x	x	x	x	x
	Zamdela	x	x	x	x	x	x	x
	Frankfort	x	x	x	x	x	x	x
	Namahabi	x	x	x	x	x	x	x
	Tweeling	x	x	x	x	x	x	x
	Parys	x	x	x	x	x	x	x
	Tumahole	x	x	x	x	x	x	x
	Metsimaholo	x	x	x	x	x	x	x
	Heilbron	x	x	x	x	x	x	x
	Siza Bantu	x	x	x	x	x	x	x
	Relebohle	x	x	x	x	x	x	x
	Sadersville	x	x	x	x	x	x	x
	Maphiri	x	x	x	x	x	x	x
	Villiers	x	x	x	x	x	x	x
	Qalabotjha	x	x	x	x	x	x	x
	Phedisong	x	x	x	x	x	x	x
	Koppies	x	x	x	x	x	x	x
	Vredefort	x	x	x	x	x	x	x

	Verkeerdevlei	x	x	x	x	x	x	x	x	x	0
	Lugenhoverpa	x	x	x	x	x	x	x	x	x	0
Sub-total		0	0	0	0	0	0	0	0	0	2
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
B	All clinics	x	x	x	x	x	x	x	x	x	0
Sub-total		0	0	0	0	0	0	0	0	0	0
C	Mobiles	0	0	0	0	0	0	0	0	0	3
	Bothaville	0	0	0	0	0	0	0	0	0	0
	Kgotsong	0	0	0	0	0	0	0	0	0	0
	K Maile	0	0	0	0	1	0	0	0	0	19
Sub-total		0	0	0	0	1	0	0	0	0	22
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
D	All clinics	0	0	0	0	0	0	0	0	0	2
	Vtrkkr Clinic	x	x	x	x	x	x	x	x	x	0
	Viljkroon PHC	x	x	x	x	x	x	x	x	x	0
	Rammolutsi	x	x	x	x	x	x	x	x	x	0
	Viljkroon LA	x	x	x	x	x	x	x	x	x	0
	Ngwathe	x	x	x	x	x	x	x	x	x	0
	Zamdela	x	x	x	x	x	x	x	x	x	0
	Frankfort	x	x	x	x	x	x	x	x	x	0
	Namahabi	x	x	x	x	x	x	x	x	x	0
	Tweeling	x	x	x	x	x	x	x	x	x	0
	Parys	x	x	x	x	x	x	x	x	x	0
	Tumahole	x	x	x	x	x	x	x	x	x	0
	Metsimaholo	x	x	x	x	x	x	x	x	x	0
	Heilbron	x	x	x	x	x	x	x	x	x	0
	Siza Bantu	x	x	x	x	x	x	x	x	x	0
	Relebohle	x	x	x	x	x	x	x	x	x	0
	Sadersville	x	x	x	x	x	x	x	x	x	0
	Maphiri	x	x	x	x	x	x	x	x	x	0
	Villiers	x	x	x	x	x	x	x	x	x	0
	Qalabotjha	x	x	x	x	x	x	x	x	x	0
	Phedisong	x	x	x	x	x	x	x	x	x	0
	Koppies	x	x	x	x	x	x	x	x	x	0
	Vredefort	x	x	x	x	x	x	x	x	x	0

	Deneysville	x	x	x	x	x	x	x
Sub-total		0	2	0	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
E	All clinics	0	2	0	0	0	0	0
	Tshiame B	x	x	x	x	x	x	x
	PO Harrismith	x	x	x	x	x	x	x
	PHC Harrismith	x	x	x	x	x	x	x
	Lesedi	x	x	x	x	x	x	x
	PO Warden	x	x	x	x	x	x	x
	Ezenzeleni	x	x	x	x	x	x	x
	PO Vrede	x	x	x	x	x	x	x
	Tsepo Themba	x	x	x	x	x	x	x
	Bophelong	x	x	x	x	x	x	x
	PHC Vrede Mo	x	x	x	x	x	x	x
	Zomani	x	x	x	x	x	x	x
	PO Memel	x	x	x	x	x	x	x
	PO Cornelia	x	x	x	x	x	x	x
Sub-total		0	2	0	0	0	0	0
F	All clinics	x	x	x	x	x	x	x
Sub-total		0	0	0	0	0	0	0
Total (Clinics & CHCs)		0	14	13	0	0	0	0
Total (Community & Hosp OPD)		0	22	13	0	0	0	0
Total (Hospital and Community)		48	190	34	13	8	10	2

	Deneysville	x	x	x	x	x	x	x	x	x	0
Sub-total		0	0	0	0	0	0	0	0	0	2
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
E	All clinics	0	0	0	0	0	0	0	0	0	2
	Tshiame B	x	x	x	x	x	x	x	x	x	0
	PO Harrismith	x	x	x	x	x	x	x	x	x	0
	PHC Harrismi	x	x	x	x	x	x	x	x	x	0
	Lesedi	x	x	x	x	x	x	x	x	x	0
	PO Warden	x	x	x	x	x	x	x	x	x	0
	Ezenzeleni	x	x	x	x	x	x	x	x	x	0
	PO Vrede	x	x	x	x	x	x	x	x	x	0
	Tsepo Themb	x	x	x	x	x	x	x	x	x	0
	Bophelong	x	x	x	x	x	x	x	x	x	0
	PHC Vrede M	x	x	x	x	x	x	x	x	x	0
	Zomani	x	x	x	x	x	x	x	x	x	0
	PO Memel	x	x	x	x	x	x	x	x	x	0
	PO Cornelia	x	x	x	x	x	x	x	x	x	0
Sub-total		0	0	0	0	0	0	0	0	0	2
F	All clinics	x	x	x	x	x	x	x	x	x	0
Sub-total		0	0	0	0	0	0	0	0	0	0
Total (Clinics & CHCs)		0	0	0	0	1	0	0	0	0	28
Total (Community & Hosp OPD)		0	0	0	0	1	0	0	2	4	36
Total (Hospital and Community)		1	2	2	0	5	6	3	348	38	324

Province	Sector	Level	Name							
N. Cape	**Hosp Inpt**			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Psych Hosp	West End	3	16	0	2	3	1	0
		Sub-total		3	16	0	2	3	1	0
		Gen hosp	Kimberley	0	0	0	0	0	0	0
		Sub-total		0	0	0	0	0	0	0
		District hospi	Gordonia	X	X	X	0	0	0	0
			Springbok	X	X	X	0	0	0	0
			Calvinia	X	X	X	0	0	0	0
			Kuruman	X	X	X	0	0	0	0
			De Aar	X	X	X	0	0	0	0
				X	X	X	0	0	0	0
		Sub-total		X	X	X	0	0	0	0
Total (Hospital Inpatient staff)				3	16	0	2	3	1	0
Hospital OPD				Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Psych Hosp	West End	0	1	0	0	0	0	0
		Sub-total		0	1	0	0	0	0	0
Total (Hospital OPD)				0	1	0	0	0	0	0
Total (Hosp Inpt & OPD)				3	17	0	2	3	1	0
Community c	**Region**	Name of clinic		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Upper Karoo	All Clinics	0	1	0.4	0	0	0	0
			De Aar	0	X	X	0	0	0	0
			Britstown	0	X	X	0	0	0	0
			Carnovan	0	X	X	0	0	0	0
			Colesberg	0	X	X	0	0	0	0
			Hanover	0	X	X	0	0	0	0
			Petrusville	0	X	X	0	0	0	0
			Richmond	0	X	X	0	0	0	0
			Noupoort	0	X	X	0	0	0	0

Sector	Level	Name	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
Hosp Inpt												
	Psych Hosp	West End	0	0	0.2	0	2	1	0	40	13	28.2
	Sub-total		0	0	0.2	0	2	1	0	40	13	28.2
	Gen hosp	Kimberley	0	0	0	0	0	0	0	0	0	0
	Sub-total		0	0	0	0	0	0	0	0	0	0
	District hos	Gordonia	0	0	0	0	X	X	X	X	X	0
		Springbok	0	0	0	0	X	X	X	X	X	0
		Calvinia	0	0	0	0	X	X	X	X	X	0
		Kuruman	0	0	0	0	X	X	X	X	X	0
		De Aar	0	0	0	0	X	X	X	X	X	0
			0	0	0	0	X	X	X	X	X	0
	Sub-total		0	0	0	0	X	X	X	X	X	0
Total (Hospital Inpatient staff)			0	0	0.2	0	2	1	0	40	13	28.2

Hospital OPD			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
	Psych Hosp	West End	0	0	0.2	0	0	0	0	0	0	1.2
	Sub-total		0	0	0.2	0	0	0	0	0	0	1.2
Total (Hospital OPD)			0	0	0.2	0	0	0	0	0	0	1.2
Total (Hosp Inpt & OPD)			0	0	0.4	0	2	1	0	40	13	29.4

Communit	Region	Name of clinic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
	Upper Karo	All Clinics	0	0	0.1	0	0	0	0	0	0	1.5
		De Aar	0	0	X	0	0	0	0	0	0	0
		Britstown	0	0	X	0	0	0	0	0	0	0
		Carnovan	0	0	X	0	0	0	0	0	0	0
		Colesberg	0	0	X	0	0	0	0	0	0	0
		Hanover	0	0	X	0	0	0	0	0	0	0
		Petrusville	0	0	X	0	0	0	0	0	0	0
		Richmond	0	0	X	0	0	0	0	0	0	0
		Noupoort	0	0	X	0	0	0	0	0	0	0

	Prieska	0	X	X	0	0	0	0
	Hanover	0	X	X	0	0	0	0
	Hopetown	0	X	X	0	0	0	0
Sub-total		0	1	0.4	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Lower Orang	All clinics	0	2	X	0	0	0	0
	Upington	0	X	X	0	0	0	0
	Kakamas	0	X	X	0	0	0	0
	Keimoes	0	X	X	0	0	0	0
	Kenhardt	0	X	X	0	0	0	0
Sub-total		0	2	0	0	0	0	0
Hantam	All clinics	0	0	0.2	0	0	0	0
Sub-total		0	0	0.2	0	0	0	0
Namaqualan	All clinics	0	1	1	0	0	0	0
Sub-total		0	1	1	0	0	0	0
Kalahari	All clinics	0	0	X	0	0	0	0
	Posmasburg	0	0	X	0	0	0	0
	Dingleton	0	0	X	0	0	0	0
	Kuruman	0	0	X	0	0	0	0
	Olifantshoek	0	0	X	0	0	0	0
Sub-total		0	0	0	0	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Diamond Fie	All Clinics							
	Galeshewe	0	0.5	X	0	0	0	0
	Betty Gaetsewe	0	0.5	X	0	0	0	0
	Planbou	0	0.5	X	0	0	0	0
	Beaconsfield	0	0.5	X	0	0	0	0
	Florianville	0	0.5	X	0	0	0	0
	Pescodia	0	0.5	X	0	0	0	0
	Delpoorthoop	0	0.235	X	0	0	0	0
	Barkly West	0	0.235	X	0	0	0	0
	Yonder	0	0.235	X	0	0	0	0
	Jannie Brink	0	0.235	X	0	0	0	0

	Prieska	0	0	X	0	0	0	0	0	0	0
	Hanover	0	0	X	0	0	0	0	0	0	0
	Hopetown	0	0	X	0	0	0	0	0	0	0
Sub-total		0	0	0.1	0	0	0	0	0	0	1.5
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Lower Oran	All clinics	0	0	0.1	0	0	0	0	0	0	2.1
	Upington	0	0	X	0	0	0	0	0	0	0
	Kakamas	0	0	X	0	0	0	0	0	0	0
	Keimoes	0	0	X	0	0	0	0	0	0	0
	Kenhardt	0	0	X	0	0	0	0	0	0	0
Sub-total		0	0	0.1	0	0	0	0	0	0	2.1
Hantam	All clinics	0	0	0.1	0	0	0	0	0	0	0.3
Sub-total		0	0	0.1	0	0	0	0	0	0	0.3
Namaquala	All clinics	0	0	0.1	0	0	0	0	0	0	2.1
Sub-total		0	0	0.1	0	0	0	0	0	0	2.1
Kalahari	All clinics	0	0	0.1	0	0	0	0	0	0	0.1
	Posmasburg	0	0	X	0	0	0	0	0	0	0
	Dingleton	0	0	X	0	0	0	0	0	0	0
	Kuruman	0	0	X	0	0	0	0	0	0	0
	Olifantshoek	0	0	X	0	0	0	0	0	0	0
Sub-total		0	0	0.1	0	0	0	0	0	0	0.1
		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Diamond Fi	All Clinics			0.1							0.1
	Galeshewe	0	0	x	0	0	0	0	0	0	0.5
	Betty Gaetsev	0	0	x	0	0	0	0	0	0	0.5
	Planbou	0	0	x	0	0	0	0	0	0	0.5
	Beaconsfield	0	0	x	0	0	0	0	0	0	0.5
	Florianville	0	0	x	0	0	0	0	0	0	0.5
	Pescodia	0	0	x	0	0	0	0	0	0	0.5
	Delpoorthoop	0	0	x	0	0	0	0	0	0	0.235
	Barkly West	0	0	x	0	0	0	0	0	0	0.235
	Yonder	0	0	x	0	0	0	0	0	0	0.235
	Jannie Brink	0	0	x	0	0	0	0	0	0	0.235

	Betty Gaetsewe	0	0.235	X	0	0	0	0
	Douglas	0	0.235	X	0	0	0	0
	Griquatown	0	0.235	X	0	0	0	0
	Cambell	0	0.235	X	0	0	0	0
	Niekerkshoop	0	0.235	X	0	0	0	0
	Jannie Brink	0	0.235	X	0	0	0	0
	Ganspan	0	0.235	X	0	0	0	0
	Warrenton	0	0.235	X	0	0	0	0
	Hartswater	0	0.235	X	0	0	0	0
	Darrielskuil	0	0.235	X	0	0	0	0
	Ritchie	0	0.235	X	0	0	0	0
Sub-total		0	7	0	0	0	0	0
Total (Clinics & CHCs)		0	11	1.6	0	0	0	0
Total (Community & Hosp OPD)		0	12	1.6	0	0	0	0
Total (Hospital and Community)		3	28	1.6	2	3	1	0

Province	**Sector**	**Level**	**Name**						
E. Cape	**Hosp Inpt**			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Psych Hosp	Elizabeth Donk	5	27	1	0	0	1	0
			Umzimkulu	158	71	25	0	0	2	0
			Tower	3	87	1	0	5	2	0
			Fort England	104	31	8	2	2	4	0
			Komani	280	153	0	0	0	6	12
		Sub-total		270	216	35	2	7	9	0
		Gen hosp	Frere	4	5	0	0	0	0	0
			C.M.H	8	15	0	0	0	0	0
			Umtata	5	23	1	1	0	1	25
		Sub-total		17	43	1	1	0	1	25
		Distr hosp	Uitenhage	8	2	5	0	0	1	0
			PHPE	0	6	6	0	0	1	0
		Sub-total		8	8	11	0	0	2	0

	Betty Gaetsev	0	0	x	0	0	0	0	0	0	0.235
	Douglas	0	0	x	0	0	0	0	0	0	0.235
	Griquatown	0	0	x	0	0	0	0	0	0	0.235
	Cambell	0	0	x	0	0	0	0	0	0	0.235
	Niekerkshoop	0	0	x	0	0	0	0	0	0	0.235
	Jannie Brink	0	0	x	0	0	0	0	0	0	0.235
	Ganspan	0	0	x	0	0	0	0	0	0	0.235
	Warrenton	0	0	x	0	0	0	0	0	0	0.235
	Hartswater	0	0	x	0	0	0	0	0	0	0.235
	Darrielskuil	0	0	x	0	0	0	0	0	0	0.235
	Ritchie	0	0	x	0	0	0	0	0	0	0.235
	Sub-total	0	0	0.1	0	0	0	0	0	0	7.1
	Total (Clinics & CHCs)	0	0	0.6	0	0	0	0	0	0	13.2
Total (Community & Hosp OPD)		0	0	0.8	0	0	0	0	0	0	14.4
Total (Hospital and Community)		0	0	1	0	2	1	0	40	13	42.6

Sector	**Level**	**Name**										
Hosp Inpt			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Psych Hosp	Elizabeth Don	3	2	2	0	3	1	0	43	21	45
		Umzimkulu	1	0	1	0	1	0	2	0	0	261
		Tower	0	0	0	0	1	0	1	143	3	100
		Fort England	2	4	2	0	4	2	2	0	0	167
		Komani	0	0	0	1	1	1	0	0	0	454
	Sub-total		6	6	5	0	9	3	5	186	24	573
	Gen hosp	Frere	0	0	1	0	2	0	0	0	0	12
		C.M.H	0.5	0	0.5	0	0.5	0	0	0	0	24.5
		Umtata	0.2	0	0.2	1	1	0	0	0	0	58.4
	Sub-total		0.7	0	1.7	1	3.5	0	0	0	0	94.9
	Distr hosp	Uitenhage	0	0	0.2	0	1	1	1	0	8	19.2
		PHPE	0	1	1	0	1	1	0	0	4	17
	Sub-total		0	1	1.2	0	2	2	1	0	12	36.2

Total Hospital Inpatient Staff		295	267	47	3	7	12	25

Hospital OPD		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Psych Hosp	Elizabeth Donk	0	32	0	1	0	3	0
	Umzimkulu	x	x	x	x	x	x	x
	Tower	0	1	0	0	0	0	0
	Fort England	0	18	0	0	0	0	0
	Komani	x	x	x	x	x	x	x
Sub-total		0	51	0	1	0	3	0
Gen hosp	Frere	0	0	0	0	0	0	0
	C.M.H	2	7	0	0	0	0	0
	Umtata	5	23	1	1	0	1	23
	Dora Nginza	x	x	x	x	x	x	x
Sub-total		7	30	1	1	0	1	23
Distr hosp	Uitenhage	0	0	0	0	0	0	0
	PHPE	0	0	0	0	0	0	0
Sub-total		0	0	0	0	0	0	0
Total Hospital OPD Staff		7	81	1	2	0	4	23
Total Hospital Inpatient & OPD Staff		302	348	48	5	7	16	48

Community c	**Region**	**Name of clinic**	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	Umzimkulu	Gugwini	3	0	3	0	0	0	4
Sub-total			3	0	3	0	0	0	4
	E	Ibisi	3	2	2	0	0	0	5
Sub-total			3	2	2	0	0	0	5
	A	All clinics	x	x	x	x	x	x	x
	B	All clinics	x	x	x	x	x	x	x
	C	All clinics	x	x	x	x	x	x	x
	D	All clinics	x	x	x	x	x	x	x

Total Hospital Inpatient Staff		6.7	7	7.9	1	14.5	5	6	186	36	704.1
Hospital OPD		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Psych Hosp	Elizabeth Don	3	3	1	0	1	0	1	0	15	45
	Umzimkulu	x	x	x	x	x	x	x	x	x	0
	Tower	0	0	0	0	1	0	1	0	0	3
	Fort England	0	0	0	0	0	0	1	0	0	19
	Komani	x	x	x	x	x	x	x	x	x	0
Sub-total		3	3	1	0	2	0	3	0	15	67
Gen hosp	Frere	0	0	0	0	0	0	0	0	0	0
	C.M.H	0.5	0	0.5	0	0.5	0	0	0	0	10.5
	Umtata	0.2	0	0.5	0.5	0.5	0	0	0	0	55.7
	Dora Nginza	x	x	x	x	x	x	x	x	x	0
Sub-total		0.7	0	1	0.5	1	0	0	0	0	66.2
Distr hosp	Uitenhage	0	0	0	0	0	0	0	0	0	0
	PHPE	0	0	0	0	0	0	0	0	0	0
Sub-total		0	0	0	0	0	0	0	0	0	0
Total Hospital OPD Staff		3.7	3	2	0.5	3	0	3	0	15	133.2
Total Hospital Inpatient & OPD Staf		10.4	10	9.9	1.5	17.5	5	9	186	51	837.3
Communit	**Region**	**Name of clini**	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Umzimkulu	Gugwini	0	0	0	0	0	0	0	0	0	10
Sub-total			0	0	0	0	0	0	0	0	0	10
	E	Ibisi	0	0	0	0	0	0	0	0	0	12
Sub-total			0	0	0	0	0	0	0	0	0	12
												0
	A	All clinics	x	x	x	x	x	x	x	x	x	0
	B	All clinics	x	x	x	x	x	x	x	x	x	0
	C	All clinics	x	x	x	x	x	x	x	x	x	0
	D	All clinics	x	x	x	x	x	x	x	x	x	0

Total Clinic and CHC Staff	6	2	5	0	0	0	9
Total (Clinic and Hosp OPD staff)	13	83	6	2	0	4	32
Total (Hosp & Community)	308	350	53	5	7	16	57

Province	Sector	Level	Name	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
W. Cape	**Hosp Inpatient**									
		Psych Hosp	Valkenberg	28	75	148	8	2.5	7	0
			Stikland	122	77	2	6	0	5	0
			Lentegeur	113	53	5	10	6	4.5	0
		Sub-total		263	205	155	24	8.5	16.5	0
		Gen hosp	Groote Schuur	8	15	1	0.63	0	2	0
			Red Cross	1	7	0	0.38	0	0.63	0
			Tygerberg	1	15	0	2	0	1	0
			Karl Bremmer	0	0	0	0	0	0	0
			Paarl	0	2	0	0	0	0	0
			Eban Donges	0	0	0	0	0	0	0
			George	X	0	X	0	0	X	0
		Sub-total		10	39	1	3.01	0	3.63	0
				Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		Distr hosp	Riversdale	0	0	0	0	0	0	0
			Mosselbay	0	0	0	0	0	0	0
			Beauford West	0	0	0	0	0	0	0
			Outshorn	0	0	0	0	0	0	0
			Knysna	0	0	0	0	0	0	0
			Murraysburg	0	0	0	0	0	0	0
			Laingsburg	0	0	0	0	0	0	0
			Prins Albert	0	0	0	0	0	0	0
			Uniondale	0	0	0	0	0	0	0
			Allen Blyth	0	0	0	0	0	0	0
			Ceres	0	0	0	0	0	0	0
			Robertson	0	0	0	0	0	0	0
			Monitgue	0	0	0	0	0	0	0

Total Clinic and CHC Staff	0	0	0	0	0	0	0	0	0	22
Total (Clinic and Hosp OPD staff)	3.7	3	2	0.5	3	0	3	0	15	155.2
Total (Hosp & Community)	10.4	10	9.9	1.5	17.5	5	9	186	51	859.3

Sector	**Level**	**Name**									
Hosp Inpatient			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Psych Hosp	Valkenberg	5	3	5	10	1	2	2	0	0	296.5
		Stikland	5	7	9	15	2	2	0	0	0	252
		Lentegeur	4	4	3	8	2	2	2	1	1	216.5
	Sub-total		14	14	17	33	5	6	4	1	1	765
	Gen hosp	Groote Schuu	1	2	2	4	0	0	0	0	0	35.63
		Red Cross	0.38	0	0.38	0	0	0	0	0	0	9.77
		Tygerberg	0	0	0	0	0	0.13	0	15	0	19.13
		Karl Bremmer	0	0	0	0	0	0	0	0	0	0
		Paarl	0	0	0	0	0	0	0	0	0	2
		Eban Donges	0	0	0	0	0	0	0	0	0	0
		George	0	0	0.11	0	0.07	X	X	0	0	0.18
	Sub-total		1.38	2	2.49	4	0.07	0.13	0	15	0	66.71
			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Distr hosp	Riversdale	0	0	0	0	0	0	0	0	0	0
		Mosselbay	0	0	0	0	0	0	0	0	0	0
		Beauford Wes	0	0	0	0	0	0	0	0	0	0
		Outshorn	0	0	0	0	0	0	0	0	0	0
		Knysna	0	0	0	0	0	0	0	0	0	0
		Murraysburg	0	0	0	0	0	0	0	0	0	0
		Laingsburg	0	0	0	0	0	0	0	0	0	0
		Prins Albert	0	0	0	0	0	0	0	0	0	0
		Uniondale	0	0	0	0	0	0	0	0	0	0
		Allen Blyth	0	0	0	0	0	0	0	0	0	0
		Ceres	0	0	0	0	0	0	0	0	0	0
		Robertson	0	0	0	0	0	0	0	0	0	0
		Monitgue	0	0	0	0	0	0	0	0	0	0

	Caledon	0	0	0	0	0	0	0
	Hermanus	0	0	0	0	0	0	0
	Stellenbosch	0	0	0	0	0	0	0
	Mamresbury	0	0	0	0	0	0	0
	Vredenberg	0	0	0	0	0	0	0
	Piketberg	0	0	0	0	0	0	0
	Clan William	0	0	0	0	0	0	0
	Vredendal	0	0	0	0	0	0	0
	Citrusdal	0	0	0	0	0	0	0
Sub total		0	0	0	0	0	0	0
Total (Hospital Inpatient staff)		273	244	156	27.01	8.5	20.13	0

Hospital OPD		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Psych Hosp	Valkenberg	1	1	0	0	0	1	0
	Stikland	1	2	0	1	0	1	0
	Lentegeur	2	6	0	1	2	2.5	0
Sub-total		4	9	0	2	2	4.5	0
Gen hosp	Groote Schuur	0	6	0	0.63	0	1	0
	Victoria Hospita	0	1	0	0	0	0	0
	Tygerberg	1	3	0	1	1	1	0
	Red Cross	0	1	0	0	0	1.01	0
Sub-total		1	11	0	1.63	1	3.01	0
Distr hosp	Ceres	0	0	0	0	0	0	0
	Robertson	0	0	0	0	0	0	0
	Montagu	0	0	0	0	0	0	0
	Caledon	0	0	0	0	0	0	0
	Hermanus	0	0	0	0	0	0	0
	Bredasdorp	0	0	0	0	0	0	0
	Swellendam	0	0	0	0	0	0	0
	Riversdale	0	0	4	0	0	0	0
	Uniondale	0	0	0	0	0	0	0
	Laingsburg	0	0	0	0	0	0	0
	Prins Albert	0	0	0	0	0	0	0

	Caledon	0	0	0	0	0	0	0	0	0	0
	Hermanus	0	0	0	0	0	0	0	0	0	0
	Stellenbosch	0	0	0	0	0	0	0	0	0	0
	Mamresbury	0	0	0	0	0	0	0	0	0	0
	Vredenberg	0	0	0	0	0	0	0	0	0	0
	Piketberg	0	0	0	0	0	0	0	0	0	0
	Clan William	0	0	0	0	0	0	0	0	0	0
	Vredendal	0	0	0	0	0	0	0	0	0	0
	Citrusdal	0	0	0	0	0	0	0	0	0	0
Sub total		0	0	0	0	0	0	0	0	0	0
Total (Hospital Inpatient staff)		15.38	16	19.49	37	5.07	6.13	4	16	1	831.71

Hospital OPD		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Psych Hosp	Valkenberg	0.65	0	1.5	1	0	0	0	0	0	6.15
	Stikland	2	2	2	6	2	0	0	1	0	19
	Lentegeur	0.92	2	0.7	0	1	1	1	0	1	20.12
Sub-total		3.57	4	4.2	7	3	1	1	1	1	45.27
Gen hosp	Groote Schuu	2.3	1	3	2	1	0	0	0	0	16.93
	Victoria Hospi	0	0	0.2	0	0	0	0	0	0	1.2
	Tygerberg	0	0	0	0	0	0.13	0	5	0	7.13
	Red Cross	1.63	0	2.26	3	0	0	0	0	0	8.9
Sub-total		3.93	1	5.46	5	1	0.13	0	5	0	34.16
Distr hosp	Ceres	0	0	0	0	0	0	0	0	0	0
	Robertson	0	0	0	0	0	0	0	0	0	0
	Montagu	0	0	0	0	0	0	0	0	0	0
	Caledon	0	0	0	0	0	0	0	0	0	0
	Hermanus	0	0	0	0	0	0	0	0	0	0
	Bredasdorp	0	0	0	0	0	0	0	0	0	0
	Swellendam	0	0	0	0	0	0	0	0	0	0
	Riversdale	0	0	0	0	0.2	0.05	0	0	0	4.25
	Uniondale	0	0	0	0	0	0	0	0	0	0
	Laingsburg	0	0	0	0	0	0	0	0	0	0
	Prins Albert	0	0	0	0	0	0	0	0	0	0

	Beaufort West	0	0	0	0	0	0	0
	Murraysburg	0	0	0	0	0	0	0
	Mosselbay	1	2	1	0	0	0	0
	George	2	0	3	0	0	1	0
	Knysna	0	2	3	0	0	0	0
	Oudtshoorn	1	0	3	0	0	0	0
Sub-total		4	4	14	0	0	1	0
Total (Hospital OPD)		9	24	14	3.63	3	8.51	0
Total (Hospital Inpatient & OPD)		282	268	170	30.64	11.5	28.64	0

Community c	**Region**	Name of clinic	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	Metropol	Mental Health	0	0	0	1	1	1	0
	District	1	0	4	0	0	0	0	0
		2	0	5	0	0	0	0	0
		3	2	2	0	0	0	0	0
		4	0	1	1	0	0	0	0
		5	0	8	0	0	0	0	0
		6	1	2	0	0	0	0	0
		7	1	3	0	0	0	0	0
		8	0	6	0	0	0	0	0
		9	0	1	0	0	0	0	0
		10	0	1	0	0	0	0	0
		11	x	x	0	0	0	0	0
		Sub total	4	33	1	0	0	0	0
			Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	Southern Ca	All Clinics	0	6	0	0	0	x	0
		Heidelberg	x	x	x	x	x	x	x
		Riversdal	x	x	x	x	x	x	x
		Stilbaai	x	x	x	x	x	x	x
		Albertinia	x	x	x	x	x	x	x
		Mosselbay Mot	x	x	x	x	x	x	x
		Mosselbay clin	x	x	x	x	x	x	x
		Grootbrakrivier	x	x	x	x	x	x	x
		George Mobile	x	x	x	x	x	x	x

	Beaufort Wes	0	0	0	0	0	0	0	0	0	0
	Murraysburg	0	0	0	0	0	0	0	0	0	0
	Mosselbay	0	0	0	0	0.4	0.1	0.1	0	0	4.6
	George	0	0	0	0	0.8	0.4	0	0	0	7.2
	Knysna	0	0	0	0	0.3	0.1	0.1	0	0	5.5
	Oudtshoorn	0	0	0	0	1	0.1	0	0	0	5.1
Sub-total		0	0	0	0	2.7	0.75	0.2	0	0	26.65
Total (Hospital OPD)		7.5	5	9.66	12	6.7	1.88	1.2	6	1	106.08
Total (Hospital Inpatient & OPD)		22.88	21	29.15	49	11.77	8.01	5.2	22	2	937.79

Communit	**Region**	Name of clinic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Metropol	Mental Health	2	0	2	0	1	0	0	1	0	8
	District	1	0	0	0	0	0	0	0	1	0	5
		2	0	0	0	0	0	0	0	0	0	7
		3	0	0	0	0	0	0	0	1	0	7
		4	0	0	0	0	0	0	0	0	0	6
		5	0	0	0	0	0	0	0	0	0	13
		6	0	0	0	0	0	0	0	0	0	9
		7	0	0	0	0	0	0	0	0	0	11
		8	0	0	0	0	0	0	0	0	0	14
		9	0.05	0	0	0	0	0	0	0	0	10.05
		10	0.03	0	0	0	0	0	0	0	0	11.03
		11	0	0	0	0	0	0	0	0	0	11
		Sub total	0.08	0	0	0	0	0	0	2	0	38.08
			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	Southern C	All Clinics	0	0	0	0	x	x	x	0	0	6
		Heidelberg	x	x	x	x	x	x	x	x	x	0
		Riversdal	x	x	x	x	x	x	x	x	x	0
		Stilbaai	x	x	x	x	x	x	x	x	x	0
		Albertinia	x	x	x	x	x	x	x	x	x	0
		Mosselbay Mc	x	x	x	x	x	x	x	x	x	0
		Mosselbay cli	x	x	x	x	x	x	x	x	x	0
		Grootbrakrivie	x	x	x	x	x	x	x	x	x	0
		George Mobil	x	x	x	x	x	x	x	x	x	0

	George clinics	x	x	x	x	x	x	x
	Knysna Mobile:	x	x	x	x	x	x	x
	Knysna clinics	x	x	x	x	x	x	x
	Plettenberg Ba	x	x	x	x	x	x	x
	Calitzdorp	x	x	x	x	x	x	x
	De Rust	x	x	x	x	x	x	x
	Dysselsdorp	x	x	x	x	x	x	x
	Haarten	x	x	x	x	x	x	x
	Herold	x	x	x	x	x	x	x
	Ladismith	x	x	x	x	x	x	x
	Zoar	x	x	x	x	x	x	x
	Oudtshoorn Mc	x	x	x	x	x	x	x
	Uniondale	x	x	x	x	x	x	x
	Oudtshoorn clir	x	x	x	x	x	x	x
	B. West clinics	x	x	x	x	x	x	x
	B. West Mobile	x	x	x	x	x	x	x
	Klaarstroom	x	x	x	x	x	x	x
	Laingsburg	x	x	x	x	x	x	x
	LeeuGamka	x	x	x	x	x	x	x
	Merweville	x	x	x	x	x	x	x
	Murraysburg	x	x	x	x	x	x	x
	Nelspoort	x	x	x	x	x	x	x
	Prins Albert	x	x	x	x	x	x	x
	Sub-total	0	6	0	0	0	0	0
Westcoast/W	All clinics	0	6	0	0.22	0	X	0
	Sub-total	0	6	0	0.22	0	0	0
		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Boland Over	All clinics	0	5	2	0	0	0	0
	Heidehof	0	0	0	0	0	0	0
	Bergsigkliniek	0	0	0	0	0	0	0
	Caledon	0	0	0	0	0	0	0
	Genadendal	0	0	0	0	0	0	0
	Greyton	0	0	0	0	0	0	0
	Grabouw	1	0	0	0	0	0	0
	Pineview	0	0	0	0	0	0	0

George clinics	x	x	x	x	x	x	x	x	x	0
Knysna Mobile	x	x	x	x	x	x	x	x	x	0
Knysna clinics	x	x	x	x	x	x	x	x	x	0
Plettenberg B	x	x	x	x	x	x	x	x	x	0
Calitzdorp	x	x	x	x	x	x	x	x	x	0
De Rust	x	x	x	x	x	x	x	x	x	0
Dysselsdorp	x	x	x	x	x	x	x	x	x	0
Haarten	x	x	x	x	x	x	x	x	x	0
Herold	x	x	x	x	x	x	x	x	x	0
Ladismith	x	x	x	x	x	x	x	x	x	0
Zoar	x	x	x	x	x	x	x	x	x	0
Oudtshoorn M	x	x	x	x	x	x	x	x	x	0
Uniondale	x	x	x	x	x	x	x	x	x	0
Oudtshoorn cl	x	x	x	x	x	x	x	x	x	0
B. West clinic	x	x	x	x	x	x	x	x	x	0
B. West Mobil	x	x	x	x	x	x	x	x	x	0
Klaarstroom	x	x	x	x	x	x	x	x	x	0
Laingsburg	x	x	x	x	x	x	x	x	x	0
LeeuGamka	x	x	x	x	x	x	x	x	x	0
Merweville	x	x	x	x	x	x	x	x	x	0
Murraysburg	x	x	x	x	x	x	x	x	x	0
Nelspoort	x	x	x	x	x	x	x	x	x	0
Prins Albert	x	x	x	x	x	x	x	x	x	0
Sub-total	0	0	0	0	0	0	0	0	0	6

Westcoast/	All clinics	0	0	0	0	X	X	X	0	0	6.22
	Sub-total	0	0	0	0	0	0	0	0	0	6.22

		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Boland Ove	All clinics	0	0	0.2	0	3	0	0	0	0	10.2
	Heidehof	0	0	0	0	0	0	0	0	0	0
	Bergsigkliniek	0	0	0	0	0	0	0	0	0	0
	Caledon	0	0	0	0	0	0	0	0	0	0
	Genadendal	0	0	0	0	0	0	0	0	0	0
	Greyton	0	0	0	0	0	0	0	0	0	0
	Grabouw	0	0	0	0	0	0	0	0	0	1
	Pineview	0	0	0	0	0	0	0	0	0	0

Groenland	0	0	0	0	0	0	0
Silwerjare	0	0	0	0	0	0	0
Hermanus	1	0	0	0	0	0	0
Hawston	0	0	0	0	0	0	0
Huis Lettie The	0	0	0	0	0	0	0
Zwelihle	0	0	0	0	0	0	0
Kleinmond	0	0	0	0	0	0	0
Mount Pleasan	0	0	0	0	0	0	0
Stanford	0	0	0	0	0	0	0
Villiersdorp	0	0	0	0	0	0	0
Regina	0	0	0	0	0	0	0
Rust en Vrede	0	0	0	0	0	0	0
Gansbaai	0	0	0	0	0	0	0
Berg 'n See	0	0	0	0	0	0	0
Botrivier	0	0	0	0	0	0	0
Gouda	0	0	0	0	0	0	0
Lady Ella Saro	0	0	0	0	0	0	0
Montana	0	0	0	0	0	0	0
Tulbagh	0	0	0	0	0	0	0
Bella Vista	0	0	0	0	0	0	0
Zweletemba	0	0	0	0	0	0	0
Touwsriver	0	0	0	0	0	0	0
De Doorns	0	0	0	0	0	0	0
Rawsonville	0	0	0	0	0	0	0
De Wet	0	0	0	0	0	0	0
Orchard	0	0	0	0	0	0	0
Sandhills	0	0	0	0	0	0	0
Brandwacht	0	0	0	0	0	0	0
Bossieveld	0	0	0	0	0	0	0
Op die Berg	0	0	0	0	0	0	0
Wolsley	0	0	0	0	0	0	0
Prins Alfred	0	0	0	0	0	0	0
Hamlet	0	0	0	0	0	0	0
Esperanto	0	0	0	0	0	0	0
Platulei	0	0	0	0	0	0	0
Annie Brown	0	0	0	0	0	0	0

Groenland	0	0	0	0	0	0	0	0	0	0
Silwerjare	0	0	0	0	0	0	0	0	0	0
Hermanus	0	0	0	0	0	0	0	0	0	1
Hawston	0	0	0	0	0	0	0	0	0	0
Huis Lettie Th	0	0	0	0	0	0	0	0	0	0
Zwelihle	0	0	0	0	0	0	0	0	0	0
Kleinmond	0	0	0	0	0	0	0	0	0	0
Mount Pleasa	0	0	0	0	0	0	0	0	0	0
Stanford	0	0	0	0	0	0	0	0	0	0
Villiersdorp	0	0	0	0	0	0	0	0	0	0
Regina	0	0	0	0	0	0	0	0	0	0
Rust en Vrede	0	0	0	0	0	0	0	0	0	0
Gansbaai	0	0	0	0	0	0	0	0	0	0
Berg 'n See	0	0	0	0	0	0	0	0	0	0
Botrivier	0	0	0	0	0	0	0	0	0	0
Gouda	0	0	0	0	0	0	0	0	0	0
Lady Ella Sar	0	0	0	0	0	0	0	0	0	0
Montana	0	0	0	0	0	0	0	0	0	0
Tulbagh	0	0	0	0	0	0	0	0	0	0
Bella Vista	0	0	0	0	0	0	0	0	0	0
Zweletemba	0	0	0	0	0	0	0	0	0	0
Touwsriver	0	0	0	0	0	0	0	0	0	0
De Doorns	0	0	0	0	0	0	0	0	0	0
Rawsonville	0	0	0	0	0	0	0	0	0	0
De Wet	0	0	0	0	0	0	0	0	0	0
Orchard	0	0	0	0	0	0	0	0	0	0
Sandhills	0	0	0	0	0	0	0	0	0	0
Brandwacht	0	0	0	0	0	0	0	0	0	0
Bossieveld	0	0	0	0	0	0	0	0	0	0
Op die Berg	0	0	0	0	0	0	0	0	0	0
Wolsley	0	0	0	0	0	0	0	0	0	0
Prins Alfred	0	0	0	0	0	0	0	0	0	0
Hamlet	0	0	0	0	0	0	0	0	0	0
Esperanto	0	0	0	0	0	0	0	0	0	0
Platulei	0	0	0	0	0	0	0	0	0	0
Annie Brown	0	0	0	0	0	0	0	0	0	0

	PG Strauss	0	0	0	0	0	0	0
	Maudie Kriel	0	0	0	0	0	0	0
	Warm Bokkeve	0	0	0	0	0	0	0
	Maria Pieterse	0	0	0	0	0	0	0
	Worcester 1	3	0	0	0	0	0	0
	Worcester 2	0	0	0	0	0	0	0
	Worcester 3	0	0	0	0	0	0	0
	Huis Andries H	0	0	0	0	0	0	0
	Nuwerus	0	0	0	0	0	0	0
	Huis Brevis	0	0	0	0	0	0	0
	Nasorg vir dow	0	0	0	0	0	0	0
	Werkswinkel vi	0	0	0	0	0	0	0
	Robertson	5	0	0	0	0	0	0
	Hagar 1	0	0	0	0	0	0	0
	Hagar 2	0	0	0	0	0	0	0
	Nkqubela	0	0	0	0	0	0	0
	McGregor	0	0	0	0	0	0	0
	Huis Le Roux	0	0	0	0	0	0	0
	Bonnievale	0	0	0	0	0	0	0
	Herfsvreugde T	0	0	0	0	0	0	0
	Ashton Mun	0	0	0	0	0	0	0
	Kogmanskloof	0	0	0	0	0	0	0
	Montagu Mun	0	0	0	0	0	0	0
	Victoria	0	0	0	0	0	0	0
	Ashbury	0	0	0	0	0	0	0
	Huis Uitvlugt	0	0	0	0	0	0	0
	Ceres PC	0	0	0	0	0	0	0
	Ceres Mun	0	0	0	0	0	0	0
	Sub-total	10	5	2	0	0	0	0
	Total (Clinics & CHCs)	14	50	3	1.22	1	1	0
Total (Community & Hosp OPD)		23	74	17	4.85	4	9.51	0
Total (Hospital and Community)		296	318	173	31.86	12.5	29.64	0

	PG Strauss	0	0	0	0	0	0	0	0	0	0
	Maudie Kriel	0	0	0	0	0	0	0	0	0	0
	Warm Bokkev	0	0	0	0	0	0	0	0	0	0
	Maria Pieterse	0	0	0	0	0	0	0	0	0	0
	Worcester 1	0	0	0	0	0	0	0	0	0	3
	Worcester 2	0	0	0	0	0	0	0	0	0	0
	Worcester 3	0	0	0	0	0	0	0	0	0	0
	Huis Andries I	0	0	0	0	0	0	0	0	0	0
	Nuwerus	0	0	0	0	0	0	0	0	0	0
	Huis Brevis	0	0	0	0	0	0	0	0	0	0
	Nasorg vir do\	0	0	0	0	0	0	0	0	0	0
	Werkswinkel \	0	0	0	0	0	0	0	0	0	0
	Robertson	0	0	0	0	0	0	0	0	0	5
	Hagar 1	0	0	0	0	0	0	0	0	0	0
	Hagar 2	0	0	0	0	0	0	0	0	0	0
	Nkqubela	0	0	0	0	0	0	0	0	0	0
	McGregor	0	0	0	0	0	0	0	0	0	0
	Huis Le Roux	0	0	0	0	0	0	0	0	0	0
	Bonnievale	0	0	0	0	0	0	0	0	0	0
	Herfsvreugde	0	0	0	0	0	0	0	0	0	0
	Ashton Mun	0	0	0	0	0	0	0	0	0	0
	Kogmanskloo	0	0	0	0	0	0	0	0	0	0
	Montagu Mun	0	0	0	0	0	0	0	0	0	0
	Victoria	0	0	0	0	0	0	0	0	0	0
	Ashbury	0	0	0	0	0	0	0	0	0	0
	Huis Uitvlugt	0	0	0	0	0	0	0	0	0	0
	Ceres PC	0	0	0	0	0	0	0	0	0	0
	Ceres Mun	0	0	0	0	0	0	0	0	0	0
	Sub-total	0	0	0.2	0	3	0	0	0	0	20.2
	Total (Clinics & CHCs)	2.08	0	2.2	0	4	0	0	3	0	78.5
Total (Community & Hosp OPD)		9.58	5	11.86	12	10.7	1.88	1.2	9	1	184.58
Total (Hospital and Community)		24.96	21	31.35	49	15.77	8.01	5.2	25	2	1016.29

Province	Sector	Level	Name	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
KZN	Hosp Inpt									
		Psych Hosp	Fort Napier	138	86	2	2	1	4	0
			Town Hill	18	116	31	0	1	4	0
			Ekuhlengeni	6	25	1	1	0	1.5	0
			Madadeni	252	70	3	2	2	1	0
		Sub total		414	297	37	5	4	10.5	0
		Gen hosp	Addington	1	7	2	0.5	0	0.5	0
			King George V	48	30	8	1.5	1	0.75	0
			King Edward VI	6	2	0	0	0	0	0
			Ngwelezane	4	6	0	0	0	0	0
			Edendale	4	22	X	0	X	1	X
		Sub total		63	67	10	2	1	2.25	0
		Distr hosp		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
		A	Murchison	0	0	0	0.25	0	0	0
			Port Shepston	X	X	X	X	X	X	X
			GJ Crookes	X	X	X	X	X	X	X
			St Andrews	X	X	X	X	X	X	X
		B	Northdale	X	X	X	X	X	X	X
			Greytown	X	X	X	X	X	X	X
			St Appolinaris	X	1	X	X	X	X	X
		C	Ladysmith	0	0	0	0	0	0	0
			Estcourt	X	2	X	X	X	X	X
			Emmaus	X	1	X	X	X	X	X
		D	Benedictine	X	2	X	X	X	X	X
			St Francis	X	1	X	X	X	X	X
			Ceza	X	X	X	X	X	X	X
			Itshelejuba	X	X	X	X	X	X	X
		E	Bethesda	X	1	X	1	X	1	X
			Manguzi	X	1	X	1	X	1	X

Sector	Level	Name	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
Hosp Inpt												
	Psych Hosp	Fort Napier	9	8	4.5	6	3	3	4	0	0	270.5
		Town Hill	5	4	1.5	3	2	2	3	118	89	190.5
		Ekuhlengeni	0	0	0.75	0	1.5	0.75	0	67	X	37.5
		Madadeni	1	0	1	0	4	1	10	127	0	347
	Sub total		15	12	7.75	9	10.5	6.75	17	312	89	845.5
	Gen hosp	Addington	1.7	1.5	1.9	1.5	1	0	1	6	4	19.6
		King George \	3	2	1.5	2	1.5	0.5	0	25	0	99.75
		King Edward \	0	0	1	2	0	0	0	0	0	11
		Ngwelezane	1	0	0.4	0	0.4	0	0	4	3	11.8
		Edendale	0	0	1.25	2	X	0	X	4		30.25
	Sub total		5.7	3.5	6.05	7.5	2.9	0.5	1	39		172.4
			Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	TOTAL
	Distr hosp											
	A	Murchison	0	0	0	0	0	0	0	0	0	0.25
		Port Shepstor	X	X	X	X	X	X	X	X		0
		GJ Crookes	X	X	X	X	X	X	X	X		0
		St Andrews	X	X	X	X	X	X	X	X		0
	B	Northdale	X	X	X	X	X	X	X	X		0
		Greytown	X	X	X	X	X	X	X	X		0
		St Appolinaris	X	X	X	X	X	X	X	X		1
	C	Ladysmith	0	0	0	0	0	0	0	0	0	0
		Estcourt	X	X	X	X	X	X	X	X		2
		Emmaus	X	X	X	X	X	X	X	X		1
	D	Benedictine	X	X	X	X	X	X	X	X		2
		St Francis	X	X	X	X	X	X	X	X		1
		Ceza	X	X	X	X	X	X	X	X		0
		Itshelejuba	X	X	X	X	X	X	X	X		0
	E	Bethesda	X	X	X	X	X	X	X	X		3
		Manguzi	X	X	X	X	X	X	X	X		3

	Mosvold	X		1	X		1	X		1	X		
	Mseleni	X		1	X		1	X		1	X		
F	Clairwood	X	X		X	X		X	X		X		
	Mahatma Ganc	X	X		X	X		X	X		X		
	Osindisweni	X	X		X	X		X	X		X		
G	Newcastle	X	X		X	X		X	X		X		
	Charles Johnsc	X		2	X	X		X		0.5	X		
	Church of Scot	X	X		X	X		X	X		X		
	Dannhauser	X	X		X	X		X	X		X		
	Dundee	X	X		X	X		X	X		X		
	Utrecht	X	X		X	X		X	X		X		
H	Empangeni	X		1	X	X		X	X		X		
	Ekombe	X		1	X	X		X	X		X		
	Catherine Boot	X		1	X	X		X	X		X		
	Eshowe	X	X		X	X		X	X		X		
	Mbongolwane	X	X		X	X		X	X		X		
	Stanger	X	X		X	X		X	X		X		
	Hlabisa	X	X		X	X		X	X		X		
	Grey's	2	2		3	0		0	0.2		0		
	Sub total	2	18		3	4.25		0	4.7		0		
Total Hospital Inpatient		479	382		50	11.25		5	17.45		0		

Hospital OPD		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Psych Hosp	Fort Napier	0	1	0	0	0	0	0
	Town Hill	1	1	0	0	0	0	0
	Ekuhlengeni	0	0	0	0	0	0	0
	Madadeni	14	25	0	0	0	0	0
Sub total		15	27	0	0	0	0	0
Gen hosp	Addington	0	2	0	0.5	0	0.5	0
	King George V	0	2	0	0.5	0	0.25	0
	King Edward VI	2	2	0	0	0	0	0
	Ngwelezane	X	X	X	X	X	X	X
	Edendale	X	X	X	X	X	X	X

	Mosvold	X	X	X	X	X	X	X	X		3
	Mseleni	X	X	X	X	X	X	X	X		3
F	Clairwood	X	X	X	X	X	X	X	X		0
	Mahatma Gar	X	X	X	X	X	X	X	X		0
	Osindisweni	X	X	X	X	X	X	X	X		0
G	Newcastle	X	X	0.25	X	X	X	X	X		0.25
	Charles Johns	X	X	X	X	X	X	X	X		2.5
	Church of Scc	X	X	X	X	X	X	X	X		0
	Dannhauser	X	X	X	X	X	X	X	X		0
	Dundee	X	X	X	X	X	X	X	X		0
	Utrecht	X	X	X	X	X	X	X	X		0
H	Empangeni	X	X	0.25	X	X	X	X	X		1.25
	Ekombe	X	X	X	X	X	X	X	X		1
	Catherine Boc	X	X	X	X	X	X	X	X		1
	Eshowe	X	X	X	X	X	X	X	X		0
	Mbongolwane	X	X	X	X	X	X	X	X		0
	Stanger	X	X	X	X	X	X	X	X		0
	Hlabisa	X	X	X	X	X	X	X	X		0
	Grey's	0	0.2	0	0	0	0.25	0	0	0	7.65
Sub total		0	0.2	0.5	0	0	0.25	0	0		32.9
Total Hospital Inpatient		20.7	15.7	14.3	16.5	13.4	7.5	18	351		1050.8

Hospital OPD		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Psych Hosp	Fort Napier	2	2	1	1	0	1	2	0	0	10
	Town Hill	1	1	0.6	0.6	0	0.1	0	1	0	5.3
	Ekuhlengeni	0	0	0	0	0	0	0	0	0	0
	Madadeni	0	0	0	0	0	0	0	0	0	39
Sub total		3	3	1.6	1.6	0	1.1	2	1	0	54.3
Gen hosp	Addington	1.7	1.5	1.9	1.5	0	0	0	1	1	9.6
	King George \	1	1	0.5	1	0.5	0.5	0	1	0	7.25
	King Edward \	3	1	2	1	1	0	0	1	0	12
	Ngwelezane	X	X	X	X	X	X	X	X	X	0
	Edendale	X	X	X	X	X	X	X	X	X	0

	Prince Mshiyeni	0	3	0	1	0	0.1	0
Sub total		2	9	0	2	0	0.85	0

Distr hosp		Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
A	Murchison	0	0.1	0	0	0	0	0
	Port Shepston	X	X	X	X	X	X	X
	GJ Crookes	0	0.1	0	0	0	0	0
	St Andrews	X	X	X	X	X	X	X
B	Northdale	0	0	0	0	0	0	0
	Greytown	X	X	X	X	X	X	X
	St Appolinaris	X	X	X	X	X	X	X
C	Ladysmith	0	3	0	0	0	0	0
	Estcourt	X	X	X	X	X	X	X
	Emmaus	X	X	X	X	X	X	X
D	Benedictine	X	X	X	X	X	X	X
	St Francis	X	X	X	X	X	X	X
	Ceza	X	X	X	X	X	X	X
	Itshelejuba	X	X	X	X	X	X	X
E	Bethesda	X	X	X	X	X	X	X
	Manguzi	X	X	X	X	X	X	X
	Mosvold	X	X	X	X	X	X	X
	Mseleni	X	X	X	X	X	X	X
F	Clairwood	X	X	X	X	X	X	X
	Mahatma Ganc	X	X	X	X	X	X	X
	Osindisweni	X	X	X	X	X	X	X
G	Newcastle	X	X	X	X	X	X	X
	Charles Johnsc	X	X	X	X	X	X	X
	Church of Scot	X	X	X	X	X	X	X
	Dannhauser	X	X	X	X	X	X	X
	Dundee	X	X	X	X	X	X	X
	Utrecht	X	X	X	X	X	X	X
H	Empangeni	X	X	X	X	X	X	X
	Ekombe	X	X	X	X	X	X	X
	Catherine Boot	X	X	X	X	X	X	X
	Eshowe	X	X	X	X	X	X	X

	Prince Mshiye	0.3	0	0.3	0	2	1	2	7	0	9.7
Sub total		6	3.5	4.7	3.5	3.5	1.5	2	10	1	38.55

Distr hosp		Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
A	Murchison	0	0	0.01	0	0	0	0	0	0	0.11
	Port Shepstor	X	X	X	X	X	X	X	X	X	0
	GJ Crookes	0	0	0.1	0	0	0	0	0	0	0.2
	St Andrews	X	X	X	X	X	X	X	X	X	0
B	Northdale	0.5	0.1	0.1	0	0	0	0	0	0	0.7
	Greytown	X	X	X	X	X	X	X	X	X	0
	St Appolinaris	X	X	X	X	X	X	X	X	X	0
C	Ladysmith	0	0	0	0	0	0	0	0	0	3
	Estcourt	X	X	X	X	X	X	X	X	X	0
	Emmaus	X	X	X	X	X	X	X	X	X	0
D	Benedictine	X	X	X	X	X	X	X	X	X	0
	St Francis	X	X	X	X	X	X	X	X	X	0
	Ceza	X	X	X	X	X	X	X	X	X	0
	Itshelejuba	X	X	X	X	X	X	X	X	X	0
E	Bethesda	X	X	X	X	X	X	X	X	X	0
	Manguzi	X	X	X	X	X	X	X	X	X	0
	Mosvold	X	X	X	X	X	X	X	X	X	0
	Mseleni	X	X	X	X	X	X	X	X	X	0
F	Clairwood	X	X	X	X	X	X	X	X	X	0
	Mahatma Gar	X	X	X	X	X	X	X	X	X	0
	Osindisweni	X	X	X	X	X	X	X	X	X	0
G	Newcastle	X	X	X	X	X	X	X	X	X	0
	Charles Johns	X	X	X	X	X	X	X	X	X	0
	Church of Scc	X	X	X	X	X	X	X	X	X	0
	Dannhauser	X	X	X	X	X	X	X	X	X	0
	Dundee	X	X	X	X	X	X	X	X	X	0
	Utrecht	X	X	X	X	X	X	X	X	X	0
H	Empangeni	X	X	X	X	X	X	X	X	X	0
	Ekombe	X	X	X	X	X	X	X	X	X	0
	Catherine Boc	X	X	X	X	X	X	X	X	X	0
	Eshowe	X	X	X	X	X	X	X	X	X	0

	Mbongolwane	X	X	X	X	X	X	X
	Stanger	X	X	X	X	X	X	X
	Hlabisa	X	X	X	X	X	X	X
Sub total		0	3.2	0	0	0	0	0
Total (Hospital OPD)		17	39.2	0	2	0	0.85	0
Total (Hosp Inpt & OPD)		496	421.2	50	13.25	5	18.3	0

Community c	**Region**	Name of clinic	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
	A	Matatiele clinic	0	0	0	0	0	0	0
		Sub-total	0	0	0	0	0	0	0
	Not stated	Ntabeni	2	1	5	0	0	0	0
		Gcilima	2	1	2	0	0	0	0
		Ludimalo	1	0	3	0	0	0	0
		Gamalakhe	3	0	9	0	0	0	0
		Bomela	2	1	1	0	0	0	0
		Ezingolweni	3	3	6	0	0	0	0
		Xhamini	1	0	2	0	0	0	0
		Pisgan	1	1	1	0	0	0	0
		Thonjeni	1	0	1	0	0	0	0
		Elim	1	1	3	0	0	0	0
		Mobile I	2	1	1	0	0	0	0
		Mobile II	1	1	1	0	0	0	0
	Sub-total		20	10	35	0	0	0	0
	A	Other clinics	X	X	X	X	X	X	X
	B	All clinics	X	X	X	X	X	X	X
	C	All clinics	X	X	X	X	X	X	X
	D	All clinics	X	X	X	X	X	X	X
	E	All clinics	X	X	X	X	X	X	X
	F	All clinics	X	X	X	X	X	X	X
	G	All clinics	X	X	X	X	X	X	X
	Total (Clinics & CHCs)		20	10	35	0	0	0	0

	Mbongolwane	X	X	X	X	X	X	X	X	X	0
	Stanger	X	X	X	X	X	X	X	X	X	0
	Hlabisa	X	X	X	X	X	X	X	X	X	0
	Sub total	0.5	0.1	0.21	0	0	0	0	0	0	4.01
Total (Hospital OPD)		9.5	6.6	6.51	5.1	3.5	2.6	4	11	1	96.86
Total (Hosp Inpt & OPD)		30.2	22.3	20.81	21.6	16.9	10.1	22	362	1	1147.66

Communit	**Region**	Name of clinic	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
	A	Matatiele clini	0	0	0	0	1	0	0	0	0	1
		Sub-total	0	0	0	0	1	0	0	0	0	1
	Not stated	Ntabeni	0	0	0	0	0	0	0	0	0	8
		Gcilima	0	0	0	0	0	0	0	0	0	5
		Ludimalo	0	0	0	0	0	0	0	0	0	4
		Gamalakhe	0	0	0	0	0	0	0	0	0	12
		Bomela	0	0	0	0	0	0	0	0	0	4
		Ezingolweni	0	0	0	0	0	0	0	0	0	12
		Xhamini	0	0	0	0	0	0	0	0	0	3
		Pisgan	0	0	0	0	0	0	0	0	0	3
		Thonjeni	0	0	0	0	0	0	0	0	0	2
		Elim	0	0	0	0	0	0	0	0	0	5
		Mobile I	0	0	0	0	0	0	0	0	0	4
		Mobile II	0	0	0	0	0	0	0	0	0	3
	Sub-total		0	0	0	0	0	0	0	0	0	65
	A	Other clinics	X	X	X	X	X	X	X	X	X	0
	B	All clinics	X	X	X	X	X	X	X	X	X	0
	C	All clinics	X	X	X	X	X	X	X	X	X	0
	D	All clinics	X	X	X	X	X	X	X	X	X	0
	E	All clinics	X	X	X	X	X	X	X	X	X	0
	F	All clinics	X	X	X	X	X	X	X	X	X	0
	G	All clinics	X	X	X	X	X	X	X	X	X	0
	Total (Clinics & CHCs)		0	0	0	0	1	0	0	0	0	66

Total (Community & Hosp OPD)	37	49.2	35	2	0	0.85	0
Total (Hospital and Community)	516	431.2	85	13.25	5	18.3	0
	Enrol Nurses	Psych Nurses	Gen Nurses	OT	OTA	Soc Workers	CHWs
Grand total (national)	**2217.35**	**2639.92**	**1056.04**	**136.06**	**191.49**	**184.28**	**108.5**

Total (Community & Hosp OPD)	9.5	6.6	6.51	5.1	4.5	2.6	4	11		162.86
Total (Hospital and Community)	30.2	22.3	20.81	21.6	17.9	10.1	22	362	0	1213.66
	Psychologist	Intern Psych	Psychiatrist	Registrar	MO	Pharmacist	Pharm Ass	Other	Other	**TOTAL**
Grand total (national)	**122**	**105.5**	**135.41**	**143.9**	**169.205**	**84.635**	**75.1**	**1803**	**160**	**7369.39**

3. Total occupied beds per month during 1997 per province

Province	Level	Name	Occupied beds
Gauteng	Psychiatric hosp	Weskoppies	1000
		Sterkfontein	624
		Tara	120
		East Rand Sanatorium	437
		Randfontein	1035
		Randwest	2039
		Struisbult	180
		Waverley	316
		Witpoort	367
	Sub-total		6118
	General hospitals	Baragwanath/Chris Hani	147
		Garankuwa	55
		Helen Joseph	20
		Johannesburg	20
		Pretoria Academic	0.77
		Natalspruit	17.18
		Pholosong	13.24
		South Rand	1.61
		Tambo Memorial	8.98
		Tembisa	23.01
		Far East Rand	1.44
		Kopanong	18
		Leratong	25
		Pretoria West	37
		Sebokeng	32
		Dr Yusuf Dadoo	1.49
		Kalafong	2.74
	Sub-total		424.46
Total			6542.46

Province	Level	Name	Occupied beds
N. Province	Psychiatric hosp	Thabomoopo	734
		Evuxakeni	334
		Hayani	278
	Sub-total		1346
	General hospitals	Pietersburg	x
		Mankweng	0
		Mokopane	11
		St Ritas	0
		Warmbaths	0
	Sub-total		11
	District hospitals	Bushveld region	3.1
		Western region	9.73
		Southern region	180
		Northern region	198
		Lowveld (Nkhensani only)	25

		Central region	x
	Sub-total		415.83
	Total		1772.83

Province	Level	Name	Occupied beds
Mpumalanga	Psychiatric hosp		0
	Sub-total		0
	General hospitals		0
	Sub-total		0
	District hospitals		
		Witbank	31
		Rob Ferrera	2
		Barbeton	x
		Shongwe	4
		Embhuleni	40
		Amajuba	9
		Elise Ballot	2
		Philadelphia	38
		Themba	37
		Piet Retief	1.3
		Lydenburg	0
		H.A Grove	1
	Sub-total		165.3
	Total		165.3

Province	Level	Name	Occupied beds
North-West	Psychiatric hosp	Bophelong	270
	Sub-total		270
	General hospitals	Potchefstroom	11
		Odi	0.07
		George Stegmann	8
		Tshomagam	10
	Sub-total		29.07
	District hospitals	Jubilee	55
		Thusong	11
		Ge. De la Rey	8
	Sub-total		74
	Total		373.07

Province	Level	Name	Occupied beds
Free State	Psychiatric hosp	Poloko (Psych)	196
		Oranje	310
	Sub-total		506

	General Hospitals	Manapo	13
		Pelonomi	20
		Boitumelo	12
		National	0
		Universitas	0
	Sub-total		45
	District Hospitals	Moroko	3.3
		Zastron	0
		Odendaalsrus	16
		Heilbron	2.28
		Sasolburg	0.83
		Parys	0.3
		Reitz	0
		Clocolan	1.2
		Senekal	1.77
		Botshabelo	0
	Sub-total		25.68
Total			576.68

Province	**Level**	**Name**	**Occupied beds**
N. Cape	Psychiatric hosp	West End	70
	Sub-total		70
	General Hospitals	Kimberly	0.05
	Sub-total		0.05
	District Hospitals	Gordonia	0.02
		Springbok	0.04
		Calvinia	0.01
		Kuruman	0.04
		De Aar	0.02
	Sub-total		0.13
Total			70.18

Province	**Level**	**Name**	**Occupied beds**
E. Cape	Psychiatric hosp	Elizabeth Donkin	114
		Umzimkulu	250
		Tower	345
		Fort England	319
		Komani	569
	Sub-total		1597
	General Hospitals	Frere	16
		C.M.H	35
		Umtata	30
	Sub-total		81
	District Hospitals	Uitenhage	12
		PHPE	11
	Sub-total		23

Total			1701

Province	Level	Name	Occupied beds
W. Cape	Psychiatric hosp	Stikland	330
		Lentegeur	207
		Valkenberg	624
		Nelspoort	55
	Sub-total		1216
	General Hospitals	Groote Schuur	23.5
		Tygerberg	33
		Red Cross	4
		Karl Bremmer	0
		Paarl	0
		Eban Donges	0
		George	5.25
	Sub-total		65.75
	District Hospitals	Riversdale	1
		Mosselbay	0
		Beauford West	0
		Outshorn	0
		Knysna	2
		Murraysburg	0
		Laingsburg	0
		Prins Albert	1
		Uniondale	1
		Allen Blyth	0
		Ceres	0
		Robertson	0
		Monitgue	0
		Caledon	0
		Hermanus	0
		Stellenbosch	0
		Mamresbury	0
		Vredenberg	0
		Piketberg	0
		Clan William	0
		Vredendal	0
		Citrusdal	0
	Sub-total		5
	Total		1286.75

Province	Level	Name	Occupied beds
KZN	Psychiatric hosp	Fort Napier	398
		Town Hill	430
		Ekuhlengeni	791
		Madadeni	783
	Sub-total		2402
	General Hospitals	Addington	17

	King George V		118
	King Edward VIII		19
	Ngwelezana		34
	Edendale		46
Sub-total			234
District Hospitals	Nonjeni	x	
	Charles Johnson	x	
	St Francis	x	
	Assissi	x	
	Christ the King	x	
	G.J Crookes		1.8
	Murchison		0.7
	Port Shepston	x	
	St Andrews	x	
	Tayler	x	
	Appelbosch	x	
	Greytown	x	
	Motebello	x	
	Northdale	x	
	St Appolinaris	x	
	Untunjambili	x	
	Estcourt	x	
	Ladysmith		6.9
	Church of Scotland	x	
	Emmanus	x	
	Benedictine	x	
	Ceza	x	
	Ithelejuba	x	
	Thulasizwe	x	
	Vryheid	x	
	Bethesda	x	
	Northdale		0
	Halibisa	x	
	Manguzi	x	
	Mosvold	x	
	Mseleni	x	
	Clairwood	x	
	Mahatma Gandi	x	
	Osindisweni	x	
	Catherine Booth	x	
	Ekombe	x	
	Lower Umfolozi	x	
	Mbongolwane	x	
	Nkandla	x	
	Stanger	x	
	Umphumlo	x	
	Ekuphumeli	x	
	Eshowe	x	
	Dundee	x	
	Grey's		3
Sub-total			12.4
Total			2648.4
Grand total (national)			**15136.67**

4. Total admissions during 1997 per province

Province	Level	Name	Admissions
Gauteng	Psychiatric hosp	Weskoppies	3390
		Sterkfontein	2443
		Tara	777
		East Rand Sanatorium	66
		Randfontein	166
		Randwest	378
		Struisbult	27
		Waverley	23
		Witpoort	63
	Sub-total		7333
	General hospitals	Baragwanath/Chris Hani	1550
		Garankuwa	950
		Helen Joseph	467
		Johannesburg	422
		Pretoria Academic	20
		Natalspruit	448
		Pholosong	302
		South Rand	84
		Tambo Memorial	468
		Tembisa	400
		Far East Rand	75
		Kopanong	760
		Leratong	1159
		Pretoria West	18
		Sebokeng	1500
		Dr Yusuf Dadoo	109
		Kalafong	200
	Sub-total		8932
Total			16265

Province	Level	Name	Admissions
N. Province	Psychiatric hosp	Thabomoopo	314
		Evuxakeni	40
		Hayani	0
	Sub-total		354
	General hospitals	Pietersburg	x
		Mankweng	x
		Mokopane	286
		St Ritas	80
		Warmbaths	37
	Sub-total		403
	District hospitals	Bushveld region	10
		Western region	209
		Southern region	1340
		Northern region	1456
		Lowveld (Nkhensani only)	349

		Central region	x
	Sub-total		3364
	Total		4121

Province	Level	Name	Admissions
Mpumalanga	Psychiatric hosp		0
	Sub-total		0
	General hospitals		0
	Sub-total		0
	District hospitals		
		Witbank	395
		Rob Ferrera	176
		Barbeton	35
		Shongwe	46
		Embhuleni	480
		Amajuba	113
		Elise Ballot	31
		Philadelphia	398
		Themba	566
		Piet Retief	33
		Lydenburg	10
		H.A Grove	23
	Sub-total		2306
	Total		2306

Province	Level	Name	Admissions
North-West	Psychiatric hosp	Bophelong	990
	Sub-total		990
	General hospitals	Potchefstroom	240
		Odi	27
		George Stegmann	318
		Tshomagam	192
	Sub-total		777
	District hospitals	Jubilee	642
		Thusong	180
		Ge. De la Rey	67
	Sub-total		889
	Total		2656

Province	Level	Name	Admissions
Free State	Psychiatric hosp	Poloko (Psych)	x
		Oranje	531
	Sub-total		531
	General Hospitals	Manapo	301

		Pelonomi	0
		Boitumelo	290
		National	0
		Universitas	0
	Sub-total		591
	District Hospitals	Moroko	200
		Zastron	0
		Odendaalsrus	90
		Heilbron	119
		Sasolburg	57
		Parys	8
		Reitz	0
		Clocolan	x
		Senekal	127
		Botshabelo	0
	Sub-total		601
Total			1723

Province	**Level**	**Name**	**Admissions**
N. Cape	Psychiatric hosp	West End	202
	Sub-total		202
	General Hospitals	Kimberly	13
	Sub-total		13
	District Hospitals	Gordonia	4
		Springbok	10
		Calvinia	3
		Kuruman	9
		De Aar	4
	Sub-total		30
Total			245

Province	**Level**	**Name**	**Admissions**
E. Cape	Psychiatric hosp	Elizabeth Donkin	977
		Umzimkulu	500
		Tower	465
		Fort England	1067
		Komani	2177
	Sub-total		5186
	General Hospitals	Frere	699
		C.M.H	x
		Umtata	415
	Sub-total		1114
	District Hospitals	Uitenhage	144
		PHPE	798
	Sub-total		942
Total			7242

Province	Level	Name	Admissions
W. Cape	Psychiatric hosp	Stikland	2113
		Lentegeur	2335
		Valkenberg	2890
		Nelspoort	x
	Sub-total		7338
	General Hospitals	Groote Schuur	3984
		Tygerberg	1021
		Red Cross	10
		Karl Bremmer	0
		Paarl	x
		Eban Donges	0
		George	x
	Sub-total		5015
	District Hospitals	Riversdale	x
		Mosselbay	0
		Beauford West	0
		Outshorn	0
		Knysna	x
		Murraysburg	0
		Laingsburg	0
		Prins Albert	x
		Uniondale	x
		Allen Blyth	0
		Ceres	0
		Robertson	0
		Monitgue	0
		Caledon	0
		Hermanus	0
		Stellenbosch	0
		Mamresbury	0
		Vredenberg	0
		Piketberg	0
		Clan William	0
		Vredendal	0
		Citrusdal	0
	Sub-total		0
	Total		12353

Province	Level	Name	Admissions
KZN	Psychiatric hosp	Fort Napier	2451
		Town Hill	1087
		Ekuhlengeni	232
		Madadeni	1984
	Sub-total		5754
	General Hospitals	Addington	817
		King George V	823

	King Edward VIII	557
	Ngwelezane	630
	Edendale	877
Sub-total		3704
District Hospitals	Nonjeni	x
	Charles Johnson	x
	St Francis	x
	Assissi	x
	Christ the King	x
	G.J Crookes	92
	Murchison	32
	Port Shepston	x
	St Andrews	x
	Tayler	x
	Appelbosch	x
	Greytown	x
	Motebello	x
	Northdale	0
	St Appolinaris	x
	Untunjambili	x
	Estcourt	x
	Ladysmith	360
	Church of Scotland	x
	Emmanus	x
	Benedictine	x
	Ceza	x
	Ithelejuba	x
	Thulasizwe	x
	Vryheid	x
	Bethesda	x
	Northdale	x
	Halibisa	x
	Manguzi	x
	Mosvold	x
	Mseleni	x
	Clairwood	x
	Mahatma Gandi	x
	Osindisweni	x
	Catherine Booth	x
	Ekombe	x
	Lower Umfolozi	x
	Mbongolwane	x
	Nkandla	x
	Stanger	x
	Umphumlo	x
	Ekuphumeli	x
	Eshowe	x
	Dundee	x
	Grey's	95
Sub-total		579
Total		10037
Grand total (national)		**56948**

5. Median length of inpatient stay in days per province during 1997

Province	Level	Name	ALOS
Gauteng	Psychiatric hosp	Weskoppies	60
		Sterkfontein	26
		Tara	60
		East Rand Sanatorium	3102.5
		Randfontein	3869
		Randwest	3248.5
		Struisbult	1752
		Waverley	5840
		Witpoort	1642.5
	Median		1752
	General hospitals	Baragwanath/Chris Hani	30
		Garankuwa	42
		Helen Joseph	11
		Johannesburg	16
		Pretoria Academic	14
		Natalspruit	x
		Pholosong	16
		South Rand	7
		Tambo Memorial	7
		Tembisa	21
		Far East Rand	7
		Kopanong	14
		Leratong	21
		Pretoria West	60
		Sebokeng	21
		Dr Yusuf Dadoo	5
		Kalafong	5
	Median		15

Province	Level	Name	ALOS
N. Province	Psychiatric hosp	Thabomoopo	22020
		Evuxakeni	335
		Hayani	3650
	Median		3650
	General hospitals	Pietersburg	6.55
		Mankweng	19
		Mokopane	10
		St Ritas	14
		Warmbaths	8
	Median		10
	District hospitals	Bushveld region	113
		Western region	17
		Southern region	70
		Northern (Malamulele only	14
		Lowveld (Nkhensani only)	21
		Central region	x

	Median		21

Province	Level	Name	ALOS
Mpumalanga	Psychiatric hosp		0
	Median		0
	General hospitals		0
	Median		0
	District hospitals		
		Witbank	4
		Rob Ferrera	8
		Barberton	5
		Shongwe	10
		Embhuleni	33
		Amajuba	5
		Elise Ballot	4
		Philadelphia	60
		Themba	14
		Piet Retief	12
		Lydenburg	3
		H.A Grove	4
	Median		6.5
	Median		6.5

Province	Level	Name	ALOS
North-West	Psychiatric hosp	Bophelong	60
	Median		60
	General hospitals	Potchefstroom	18
		Odi	1
		George Stegmann	60
		Tshomagam	7
	Median		12.5
	District hospitals	Jubilee	14
		Thusong	30
		Ge. De la Rey	4
	Median		14

Province	Level	Name	ALOS
Free State	Psychiatric hosp	Poloko (Psych)	365
		Oranje	60
	Median		212.5
	General Hospitals	Manapo	14
		Pelonomi	2.5
		Boitumelo	7

	National	n/a
	Universitas	n/a
Median		7
District Hospitals	Moroko	3
	Odendaalsrus	22
	Heilbron	7
	Sasolburg	5
	Parys	0
	Clocolan	3
	Senekal	5.1
	Zastron	n/a
	Reitz	n/a
	Botshabelo	n/a
Median		5

Province	Level	Name	ALOS		
			All beds	Acute	Long stay
N. Cape	Psychiatric hosp	West End	566.5	38	1095
Median			566.5		
	General Hospitals	Kimberly	1.5		
Median			1.5		
	District Hospitals	Gordonia	1.5		
		Springbok	1.5		
		Calvinia	1.5		
		Kuruman	1.5		
		De Aar	1.5		
Median			1.5		

Province	Level	Name	ALOS
E. Cape	Psychiatric hosp	Elizabeth Donkin	38
		Umzimkulu	90
		Tower	20032
		Fort England	42
		Komani	x
Median			66
	General Hospitals	Frere	x
		C.M.H	x
		Umtata	28
Median			28
	District Hospitals	Uitenhage	10
		PHPE	7
Median			8.5

Province	Level	Name	ALOS
W. Cape	Psychiatric hosp	Stikland	x
		Lentegeur	44.8
		Valkenberg	94
		Nelspoort	x
	Median		69.4
	General Hospitals	Groote Schuur	21
		Tygerberg	10.4
		Red Cross	180
		Karl Bremmer	0
		Paarl	5
		Eban Donges	0
		George	x
	Median		7.7
	District Hospitals	Riversdale	x
		Mosselbay	0
		Beauford West	0
		Outshorn	0
		Knysna	x
		Murraysburg	0
		Laingsburg	0
		Prins Albert	x
		Uniondale	x
		Allen Blyth	0
		Ceres	0
		Robertson	0
		Monitgue	0
		Caledon	0
		Hermanus	0
		Stellenbosch	0
		Mamresbury	0
		Vredenberg	0
		Piketberg	0
		Clan William	0
		Vredendal	0
		Citrusdal	0
	Median		x

Province	Level	Name	ALOS
KZN	Psychiatric hosp	Fort Napier	377
		Town Hill	42
		Ekuhlengeni	2938
		Madadeni	75
	Median		226
	General Hospitals	Addington	7
		King George V	14
		King Edward VIII	14
		Ngwelezane	21
		Edendale	x

Median			14
District Hospitals	Nonjeni	x	
	Charles Johnson	x	
	St Francis	x	
	Assissi	x	
	Christ the King	x	
	G.J Crookes		7
	Murchison		7
	Port Shepston	x	
	St Andrews	x	
	Tayler	x	
	Appelbosch	x	
	Greytown	x	
	Motebello	x	
	Northdale		0
	St Appolinaris	x	
	Untunjambili	x	
	Estcourt	x	
	Ladysmith		7
	Church of Scotland	x	
	Emmanus	x	
	Benedictine	x	
	Ceza	x	
	Ithelejuba	x	
	Thulasizwe	x	
	Vryheid	x	
	Bethesda	x	
	Northdale	x	
	Halibisa	x	
	Manguzi	x	
	Mosvold	x	
	Mseleni	x	
	Clairwood	x	
	Mahatma Gandi	x	
	Osindisweni	x	
	Catherine Booth	x	
	Ekombe	x	
	Lower Umfolozi	x	
	Mbongolwane	x	
	Nkandla	x	
	Stanger	x	
	Umphumlo	x	
	Ekuphumeli	x	
	Eshowe	x	
	Dundee	x	
	Grey's		14
Median			7

National median (Psychiatric hospitals)	219.25
National median (General hospitals)	11.25
National median (District hospitals)	7

6. Total ambulatory care attendances and defaults per month in 1997 per province

Province	Sector	Level	Name	Attendances	Defaulters	Default rate (%)
Gauteng	**Hosp OPD**	Psych hosp				
			Weskoppies	330	80	
			Sterkfontein	110	1	
			Tara	1100	49	
			East Rand Sanatorium	x	x	
			Randfontein	x	x	
			Randwest	x	x	
			Struisbult	x	x	
			Waverley	x	x	
			Witpoort	x	x	
		Sub-total		1540	130	8%
		Gen hosp	Baragwanath/Chris Ha	x	x	
			Garankuwa	950	80	
			Helen Joseph	x	x	
			Johannesburg	x	x	
			Pretoria Academic	300	16	
			Natalspruit	x	x	
			Pholosong	x	x	
			South Rand	110	20	
			Tambo Memorial	80	x	
			Tembisa	60	x	
			Far East Rand	90	x	
			Kopanong	95	18	
			Leratong	80	x	
			Pretoria West	x	x	
			Sebokeng	375	26	
			Dr Yusuf Dadoo	30	x	
			Kalafong	200	20	
		Sub-total		2370	180	7%
Total (hospital OPD)				3910	310	7%

Community	Clin+CHC	Central Wits Region	Attendances	Defaulters	Default rate (%)
		City	400	15	
		Hillbrow	450	x	
		Townsview	400	10	
		Jeppe	300	1	
		Gordonia	80	x	
		Alexandra	400	15	
		Brixton	250	10	
		Riverley	120	5	
		Westbury	250	40	
		Eldorado Park	1350	60	
		Lenasia	1200	25	
		Florida	x	12	
		Lillian Ngoyi	50	10	
		Chianelo	800	50	
		Diepkloof	624	60	
		Dobsonville	173	10	
		Meadowlands	480	50	

Mofolo	730	50	
Orange Farm	350	30	
Orlando	1000	70	
Zola	1300	50	
Ennedale	300	20	
Pimville	300	50	
Sub-total	11307	643	5%
East Rand Region	**Attendances**	**Defaulters**	**Default rate (%)**
Alberton	390	20	
Eden Park	74	7	
Dresser	300	15	
Actonville	302	8	
Daveyton	416	50	
Boksburg	572	100	
Vosloorus	179	10	
Reiger Park	165	10	
Tsakane	226	15	
Rabie Ridge	25	1	
Bophelong	20	1	
Duduza	193	10	
Devon	21	3	
Kwa Thema	480	12	
Ratanda	83	5	
Randvaal	12	x	
Germiston	500	60	
Dukatole	25	3	
Katlehong North	14	2	
Goba	640	40	
Zonkizizwe	600	20	
Moleleki	100	11	
Khumalo	100	6	
Palm Ridge	16	3	
Kempton Park	421	40	
Thembisa CHC	360	40	
Thembisa clinic	250	30	
Erin	150	5	
Esangweni	109	7	
Sub-total	6743	534	7%
Vaal Region	**Attendances**	**Defaulters**	**Default rate (%)**
Tokisong	200	8	
Sharpeville adult clinic	120	6	
Boipatong	180	7	
Kookrus	100	5	
Vereeniging	75	5	
Van der Bijl Park adult	70	3	
Sharpeville child servi	25	8	
Vereeniging child serv	14	3	
Van der Bijl Park child	13	2	
Sub-total	797	47	6%
Pretoria region	**Attendances**	**Defaulters**	**Default rate (%)**
Central North	200	18	
Central West	200	30	
Central East	150	8	
Pretoria North	250	9	
Hercules	155	16	

		Rietfontein	155	0	
		Sammy Marks	40	0	
		Sunnyside	70	6	
		Pretoriuspark	75	0	
		Danville	200	8	
		Mamelodi	700	0	
		Eersterus	300	74	
		Eastlynne	70	2	
		Silverton	75	2	
		Laudium	210	14	
		Centurion	140	13	
		Attridgeville	290	33	
		Vembe	120	15	
		Lotus Garden	10	3	
		Sautsville	120	23	
		Bronkhorstspruit	30	5	
		Cullinan/Refilwe	30	12	
		Service Products	20	0	
		Soshanguve I	210	0	
		Soshanguve II	50	0	
		Soshanguve III	100	33	
		Boikutsong	20	0	
		Child & adolescents	270	47	
		Child & adolescents (E	30	0	
		Psychogeriatrics	260	0	
		Sub-total	4550	371	8%
		West Rand	**Attendances**	**Defaulters**	**Default rate (%)**
		Kagiso A	660	22	
		Hekpoort	391	12	
		Mogale	21	9	
		Gzaadville	45	4	
		Swannieville	77	8	
		Munsieville	31	5	
		Muldersdrift	13	1	
		SA Dutch Centre	17	1	
		Randfontein	123	7	
		Mahlakeng	192	10	
		Toekomsrus	62	3	
		Bekkersdal	150	10	
		Westonasia	21	1	
		Sybrand	55	2	
		Khutsong	245	30	
		Child and adolescent (	64	1	
		Sub-total	2167	126	5%
Total (Community Clin+CHC)			25564	1721	6%
Total (Community and Hosp OPD)			29474	2031	6%

N. Province Hosp OPD	Psych hosp	**Name**	**Attendances**	**Defaulters**	**Default rate (%)**
		Thabomoopo	0	0	
		Evuxakeni	0	0	
		Hayani	0	0	
	Sub-total		0	0	0%
	General hosp	Pietersburg	x	x	

	Mankweng	x	x	
	Mokopane	75	0	
	St Ritas	x	x	
	Warmbaths	5	0	
Sub-total		80	0	0%
District hospi	Bushveld region	20	6	
	Western region	182	4	
	Southern region	812	195	
	Northern region	937	247	
	Lowveld (Nkensani on	120	10	
	Central region	x	x	
Sub-total		2071	462	18%
Total (Hospital OPD)		2151	462	18%

Community	Clin+CHC	**Attendances**	**Defaulters**	**Default rate (%)**
	Bushveld region			
	Nylstrom	80	10	
	Warmbad	x	x	
	Thabazimbi	6	2	
	Ellisras	15	2	
	Witpoort	40	6	
	Sub-total	141	20	12%

Western region	**Attendances**	**Defaulters**	**Default rate (%)**
Bakenberg	2.1	0.3	
Bavaria	2.7	0.2	
Tiberius	1.6	0.1	
Mattanau	0.6	0.1	
Rebone	1.5	0.3	
Mankuwe	1.6	0.4	
Weldevreden	0.5	0.1	
Jakkalskruil	0.5	0.2	
Mokamole	2.1	0.4	
Paulos	0.3	0.2	
Mapela	1.6	0.1	
Tshamahansi	3.2	1.03	
Mamaselela	2.1	0.86	
Vaalkop	0.87	0.23	
Pholotsi	2.49	0.89	
Phafola	0.6	0.3	
Mobile: Bakenberg	19.6	3.1	
Mobile: Koedoes Ranc	5.69	1.93	
Mobile: Beauty	4.9	1.54	
Mobile: Mapela	6.89	2.8	
Mobile: Palala	2	0	
Mobile A	25	6	
Mobile: Roedtan	7	0	
Mobile: Sterkrivier	3	0	
Mobile: Potgietersrus	10	2	
Mobile: Gillemburg	7	0	
Mahwelerems I	77	42	
Mahwelerems II	50	30	
Potgietersrus	20	5	

Elandiskraal	70	28	
Bokwalakwala	68	39	
Sub-total	400.44	167.08	29%

Southern region	**Attendances**	**Defaulters**	**Default rate (%)**
Hlogotloli	74	27	
Phokoane	80	23	
Sephakli	56	27	
Marishane	40	8	
Phaahla	35	6	
Probeerin	31	5	
Klipspruit	21	7	
Goedgedacht	19	5	
Kensaam	x	x	
Rietfontein	x	x	
Mampane	25	7	
Mmotwaneng	21	5	
Dikgalopeng	11	4	
Matsepe	19	8	
Rammupudu	20	5	
Magalies	12	5	
Setlaboswana	16	6	
Leeufontein	22	7	
Motetema	20	9	
Rakgoadi	19	8	
Moeding	13	3	
Mmutlane	19	12	
Mashabela	15	5	
Motsepe	15	2	
Mmanatoane	10	3	
Selepe	12	5	
Mecklengberg	24	11	
Rietfontein	22	23	
Sterkspruit	15	8	
Schlikmanskloof	14	6	
Basskloof	12	10	
Bothashoek	23	7	
Eerstegeluk	8	18	
Naboomkopies	19	8	
Praktiseer	16	9	
Taung	8	0	
Poli	135	37	
Jane Furse	140	51	
Marulaneng	19	6	
Manganeng	28	9	
Mailapitsane	18	5	
Magnet heights	27	13	
Mohlaletsi	34	11	
Seroka	14	3	
Madibaneng	21	9	
Radinqwane	11	5	
Phaahlamaanoge	11	6	
Mailasegone	4	2	
Mphanama	24	12	
Mamone	22	8	

Nehabeleng	54	11	
Nkoana	25	4	
Ngoabe	40	11	
Schoonoord	36	13	
Moiplaats	21	6	
Sub-total	1470	524	26%

Northern region	**Attendances**	**Defaulters**	**Default rate (%)**
Siloam	209	67	
Mudimeli	3	7	
Makhado	40	40	
Tshikulani	31	15	
Rabali	23	17	
Mephephu	56	27	
Straightae	21	17	
Khomele	9	14	
Tshawara	25	19	
Matsa	32	13	
Ntudimeli	x	x	
Mauluma	37	17	
Fondiwe	51	23	
Valdezia	25	5	
Kuruleni	18	2	
Marseilles	44	11	
Helderwater	x	x	
Bungeni	182	12	
Khansone	x	x	
Riverplaats	14	1	
Masakona	35	3	
Nthabalala	19	5	
Mulima	38	4	
Muila	32	3	
Mnwanani	28	2	
De Hoop	30	2	
Mashani	52	7	
Waterval	x	x	
Mashemba	48	5	
Mobiles	937	38	
Nthlaveni C	31	0	
Mhinga	19	4	
Nthlaveni D	12	0	
Mtititi	16	3	
Shingwedzi	7	0	
Tlangelani	29	4	
Mphambo	17	7	
Shigalo	23	0	
Mavambe	19	0	
Shikundu	29	0	
Nthlaveni E	26	0	
Donald Fraser clinics	662	94	
Sub-total	2929	488	14%

Lowveld region	**Attendances**	**Defaulters**	**Default rate (%)**
Sub-total	x	x	x

	Central region	Attendances	Defaulters	Default rate (%)
	Sub-total	x	x	x

Total (Clin+CHC)	2673.44	805.08	23%
Total (Community & Hosp OPD)	4824.44	1267.08	21%

	District Hosp Name	Attendances	Defaulters	Default rate (%)
Mpumalang Hosp OPD	Witbank	x	x	
	Rob Ferrera	21	4	
	Barbeton	20	0	
	Shongwe	6	0	
	Standerton	x	x	
	Embhuleni	120	20	
	Mamethlake	10	0	
	Amajuba	0	0	
	Elise Ballot	0	0	
	Philadelphia	x	x	
	Themba	160	10	
	Piet Retief	55	14	
	Lydenburg	0	0	
	H.A Grove	0	0	
Total (Hospital OPD)		392	48	11%

		Name of clinic	Attendances	Defaulters	Default rate (%)
Community	**District**				
	Tonga				
		Mangweni	22	5	
		Mbuzini	6	1	
		Mbangwane	7	2	
		Fig Tree	11	2	
		Masibekela	19	5	
		Block B	8	1	
		Block C	11	3	
		Naas	19	5	
		Steenbok	11	2	
		Strydomblok	3	0	
		Komatipoort	5	0	
	Sub-total		122	26	18%
			Attendances	**Defaulters**	**Default rate (%)**
	Witbank				
		Lynnville	265	36	
		Phola	76	10	
		Botleng	28	9	
		Louise	150	4	
	Sub-total		519	59	10%
			Attendances	**Defaulters**	**Default rate (%)**
	Lydenburg				
		Mobiles	51	x	
		Lydenburg	103	10	
		Mashishing	126	10	
		Burgersfort	15	10	
		Ohrigstad	46	4	
		Sakhelwe	25	5	

	Emgwenya	38	6	
	Watervalboven	13	3	
	Enthonyeni	18	2	
	Machadadorp	10	2	
	Siathuthuka	54	6	
	Rusoord	20	4	
	Kinderhuis	21	0	
	Bradfontein	9	1	
	Khanya	47	0	
	Estralita	42	0	
	Wenakker	150	0	
Sub-total		788	63	7%
		Attendances	**Defaulters**	**Default rate (%)**
Standerton				
	Jerry van Vuuren	172	25	
	Siyathemba	60	20	
	Maharoone	30	4	
	Standerton old age ho	6	0	
	Standerton Hosp OPD	11	5	
	Balfour mobile	5	0	
	Standerton mobile	4	0	
Sub-total		288	54	16%
		Attendances	**Defaulters**	**Default rate (%)**
Witbank				
	Driefontein	33	8	
	Driefontein	22	5	
	Iswepe	5	2	
	Mobile I	3	3	
	Mobile II	6	2	
	Mobile III	1	1	
Sub-total		70	21	23%
		Attendances	**Defaulters**	**Default rate (%)**
White River-Kabokweni				
	Hazyview	10	3	
	Shabalaga	15	2	
	Bongani	20	5	
	Mthimba	30	5	
	Jerusalem	35	5	
	Manzini	35	5	
	Legogote	20	3	
	Mbonisweni	5	1	
	Dwalisini	15	2	
	Clau-Clau	15	5	
	Mafoko	3	0	
	Khumbula	15	3	
	Gutshwa	15	3	
	White River	8	2	
	Kruger National Park	1	0	
	Phola-Nsikazi	0	0	
Sub-total		242	44	15%
		Attendances	**Defaulters**	**Default rate (%)**
Kwa-Mhlanga				
	Ekangala CHC	38	5	
	Ekangala F	12	0	
	Kwamhlanga	5	0	

Kameelpoortnek	38	4	
Leeufontein	20	0	
Moloho	20	0	
Kwaggafontein CHC	62	25	
Kwaggafontein A	50	20	
Mathyzevloop	15	10	
Boekenhouthoek	25	0	
Goederede	10	0	
Vriesgewacht	38	5	
Vlaklaagte CHC	52	20	
Vlaklaagte I	54	20	
Tweefontein A	38	15	
Tweefontein C	10	0	
Tweefontein D	10	10	
Tweefontein H	80	35	
Gemboksprui t	x	x	
Vezibuhle	10	0	
Buhleburice	10	0	
Bronkhodmine	5	0	
Vlakfontein	3	0	
Verena	10	0	
Tweefontein	15	0	
Sub-total	630	169	21%
	Attendances	**Defaulters**	**Default rate (%)**
Nelspruit			
Biondal	11	11	
Eziweni	0	0	
Kanyamoz	331	15	
Matsulu	248	12	
Msogwab	427	15	
Sibuya	272	7	
Luphu	1	1	
Zwelisha	193	6	
Thekwa	3	3	
Nwalini	97	1	
Sub-total	1583	71	4%
	Attendances	**Defaulters**	**Default rate (%)**
Barberton			
Kaapmuiden	10	5	
Lowscreek	15	5	
Shannon	4	1	
Emjindini	70	25	
Barberton	9	2	
Sub-total	108	38	26%
	Attendances	**Defaulters**	**Default rate (%)**
Eerstehoek-Carolina			
Tjakastad	52	15	
Mooiplaas	7	3	
Isomilani	x	x	
Vlakplaas	2	1	
Carolina mobile			
Badplaas mobile	15	10	
Southern clinics mobil	x	x	
Central clinics mobile	x	x	
Carolina	9	x	

	Eerstehoek	x	x	
	Diepdale	40	20	
	Fernie I	28	12	
	Fernie II	35	15	
	Mayflower	25	10	
	Dundonald	58	24	
	Glenmore	53	15	
	Swallownest	30	8	
	Betty Goed	10	5	
	Hartebeeskop	28	10	
	Nhlazatshe	16	10	
	Slobela	40	10	
	Kromdraai	20	5	
Sub-total		468	173	27%
		Attendances	**Defaulters**	**Default rate (%)**
Shongwe				
	Jeppes reef	13	4	
	Schoemansdal	x	x	
	Driekoppies	9	8	
	Middelplaas	10	4	
	Phiva	x	x	
	Langeloop	14	10	
	Boschfontein	16	4	
	Mzinti	9	2	
	Sihlangu	x	x	
	Mgobodi	9	7	
	Sikhwahlane	2	0	
	Kamhlishwa	5	2	
	Jeppes Rust	3	1	
	Mobiles			
Sub-total		90	42	32%
		Attendances	**Defaulters**	**Default rate (%)**
Mmametlhake				
	Marapyane Health Cei	83	41	
	Allemansdrift Health C	24	21	
	Mammetlhake	53	11	
	Pankop	86	18	
	Mokaneng	49	17	
	Seabe	85	26	
	Lefisaane	58	9	
	Ga-Maria	10	1	
	Bloedfontein	48	8	
	Troya	17	1	
	Loding	9	1	
	Vaalbank	41	4	
	Witlaagte	13	3	
	Kalkfontein	26	10	
	Mobile: Allemansdrift	0	0	
	Mobile: Mmametlhake	0	0	
Sub-total		602	171	22%
		Attendances	**Defaulters**	**Default rate (%)**
Volksrust	Joubert st	151	8	
	Hoop str Perdekop	26	9	
	Wakkerstroom old age	38	3	
	Schoon st	x	x	

		Vukuzakhe	x	x	
		Amajuba memorial	x	x	
		Amersfoort (Daggakra	65	21	
		Enamakhule	7	1	
	Sub-total		287	42	13%
	Secunda				
		Embalenhle	90	9	
		Secunda	15	8	
		Evander	12	7	
	Sub-total		117	24	17%
Total (Community Clin+CHC)			5914	997	14%
Total (Community and Hosp OPD))			6306	1045	14%

N. West	Hospital OPD	Name	Attendances	Defaulters	Default rate (%)
	Psych hosp	Bophelong	220	28	
	Sub-total		220	28	11%
	General hosp	Potchefstroom	x	x	
		Odi	0	0	
		George Stegmann	124	26	
		Tshomagam	80	x	
	Sub-total		204	26	11%
	District hospi	Jubilee	800	300	
		Thusong	57	18	
		Ge. De la Rey	0	0	
	Sub-total		857	318	27%
Total (Hospital OPD)			1281	372	23%

Community	District	Name of clinic	Attendances	Defaulters	Default rate (%)
	Mogwase A	"17 clinics"	315	92	
		"Mobile clinics"	78	7	
	Mogwase B	Mogwase Health Cent	60	20	
		"7 clinics"	280	40	
		Mahestad	100	20	
		"43 clinics"	370	30	
	Sub-total		1203	209	15%
			Attendances	**Defaulters**	**Default rate (%)**
	Ganyesa	Ganyesa	70	30	
		Tlakgang	80	40	
		Morokung	73	40	
		Kgokgajane	30	10	
		Kgokgole	10	5	
		Eckron	20	7	
		Tlopeng	20	6	
		Tseage	15	8	
		Kokoga	8	3	
	Sub-total		326	149	31%
			Attendances	**Defaulters**	**Default rate (%)**
	Klerksdorp	"8 clinics"	562	200	

Sub-total		562	200	26%
Vryburg	Huhudi	230	90	
	Stella	20	8	
	Lavuma	10	4	
	Bithakwana	5	2	
	Bevondale	5	2	
	Lykso	4	1	
	Colridge	165	50	
Sub-total		439	157	26%
		Attendances	**Defaulters**	**Default rate (%)**
Rustenburg				
"1 Urban"		x	x	
"7 Peri-urban"		x	x	
	Menakato	44	12	
	Boitekong	25	5	
	Bafokeng	61	39	
"11 Rural"		x	x	
	Kana	61	x	
	Mfidikwe	0	0	
	Luka	62	6	
	Chaneng	50	15	
	Raseng	60	35	
	Wonderkop	15	3	
	Thekwane	28	16	
	Rankele Nyane	25	6	
	Phatsima	37	10	
Sub-total		468	147	24%
		Attendances	**Defaulters**	**Default rate (%)**
Kudumane	Kagisho	56	10	
	Loopen	39	9	
	Ben Del	50	8	
	Kamden	80	20	
Sub-total		225	47	17%
		Attendances	**Defaulters**	**Default rate (%)**
Schweizer-Reneke				
	Town clinic	120	20	
	Iperegeng	60	10	
	Amalia	30	5	
	Christiaan	70	15	
	Bloemhof	75	15	
Sub-total		355	65	15%
		Attendances	**Defaulters**	**Default rate (%)**
Ventersdorp	Ventersdorp CHC	x	x	
	Gateway	x	x	
	Tshing	x	x	
	Mobile I	x	x	
	Mobile II	x	x	
	Mobile III	x	x	
	Mobile IV	x	x	
	Ga-Motlatla	x	x	
	Doornkop	x	x	
	Goedgeronde	x	x	
	Mogopa	x	x	
Sub-total		0	0	0%

		Attendances	Defaulters	Default rate (%)
Makopanstad-Cyverkuil				
	Makopanstad	120	8	
	Mathambo	124	19	
	Tlakstad	22	4	
	Kgomakgoma	18	0	
	Thukwe	22	1	
Sub-total		306	32	9%
		Attendances	**Defaulters**	**Default rate (%)**
Moretele-Cyverkuil				
	Kutluanking	33	17	
	Releboche	55	6	
	Lebotloane	80	14	
	Moretele	29	14	
	Dikeru	34	4	
Sub-total		231	55	19%
		Attendances	**Defaulters**	**Default rate (%)**
Ratjiepan				
	Refontse	38	4	
	Gamotle	63	18	
	Mogogeko	49	18	
	Ratjiepan	x	x	
	Dilopye	17	5	
Sub-total		167	45	21%
		Attendances	**Defaulters**	**Default rate (%)**
Moretele-Temba				
	Selepe	4	1	
	Dipethane	14	5	
	Mukubyana	7	2	
	Ruigdestaat	15	0	
	Ballontlokoa	7	0	
	Moroki	8	0	
	Tlamane	7	4	
	Dr Greus	3	3	
	Tholse	10	0	
	Slagboom	3	0	
	Olvertrou	5	1	
	Lefathlang	3	0	
Sub-total		86	16	16%
		Attendances	**Defaulters**	**Default rate (%)**
Temba-Moretele				
	Bosplaas	47	17	
	Kekanastad	80	3	
	Temba	78	13	
	Ramotse	53	9	
	Babelezi	22	0	
	Maubane	59	15	
Sub-total		339	57	14%
		Attendances	**Defaulters**	**Default rate (%)**
Potchefstroom				
	All clinics	555	20	
Sub-total		555	20	3%
		Attendances	**Defaulters**	**Default rate (%)**
Lichtenburg				
	Bodibe	53	16	

	Polyclinic	30	12	
	Itsoseng	40	13	
	Matshepe	6	5	
	Dithwaneng	4	2	
	Verdwaal	10	5	
	Phatsima	8	2	
	Bethel	14	6	
	Matile II	12	10	
	Lichtenburg I	24	6	
	Lichtenburg II	32	20	
	Lichtenburg III	48	5	
	Lichtenburg IV	49	2	
	Lichtenburg V	20	2	
	Blydeville	11	10	
	Biesiesvlei	18	10	
	Coligny I	44	10	
	Coligny II	22	1	
Sub-total		445	137	24%
		Attendances	**Defaulters**	**Default rate (%)**
Odi				
	Boekenhout	56	30	
	Buffelsdooring	14	6	
	Hebron	20	17	
	Hoekfontein	28	26	
	Ikhutseng	43	24	
	Jericho	29	16	
	Kgabo	48	23	
	Kgabalatsane	13.3	2	
	Kromkuil	12.3	2	
	Maboloka	48	7	
	Madibi	17.5	3	
	Phedisong I	25	4	
	Phedisong IV	32	4	
	Phedisong VI	35	5	
	Rabokala	6.5	0.8	
	Repentse	16.5	2	
	Sedilega	9	1	
	Soutpanslaagte	8	0.7	
	Tlamelong	56	9	
	Winterveldt	43	6	
	Mobiles	14	1	
Sub-total		574.1	189.5	25%
Brits		x	x	
Delareyville		x	x	
Mafikeng		x	x	
Taung		x	x	
Wolmaransstad		x	x	
Zeerust		x	x	
Total (Clin+CHC)		6056.1	1478.5	20%
Total (Clinics and Hosp OPD)		7337.1	1850.5	20%

Free State	Hospital OPD	Name	Attendances	Defaulters	Default rate (%)
	Psych hosp	Poloko (Psych)	0	0	
		Oranje	946	13	
		Sub-total	946	13	1%
	General Hos	Manapo	x	x	
		Pelonomi	432	200	
		Boitumelo	0	0	
		National	138	x	
		Universitas	0	0	
		Sub-total	570	200	26%
			Attendances	**Defaulters**	**Default rate (%)**
	District Hosp	Moroko	0	0	
		Zastron	0	0	
		Odendaalsrus	0	0	
		Heilbron	0	0	
		Sasolburg	0	0	
		Parys	0	0	
		Reitz	0	0	
		Clocolan	0	0	
		Senekal	0	0	
		Botshabelo	0	0	
		Sub-total	0	0	0%
Total (Hospital OPD)			1516	213	12%

Community	Region	Name of clinic	Attendances	Defaulters	Default rate (%)
	A				
		Aandrus	9	0	
		Clinic B	x	x	
		Clinic C	x	x	
		Clinic D	x	x	
		Clinic E	x	x	
		Clinic J	x	x	
		Clinic K	x	x	
		Clinic N	x	x	
		Clinic U	x	x	
		Industrial	x	x	
		Mafane	48	9	
		Gaongalelwe	62	15	
		Mokoena	26	6	
		Dinaane	31	6	
		Thaba Nchu	9	2	
		Poly clinic	188	17	
		Phetogo	7	0	
		Tweefontein	10	2	
		Klipfontein	3	0	
		Tiger River	2	0	
		Kgalala	12	2	
		Sediba	11	5	
		Seadimo	4	2	
		Mobile	50	6	
		Bainsvlei	10	0	
		Bloemspruit	20	7	

	Baltho	177	50	
	Rocklands	573	81	
	Heidedal	169	28	
	Brandfort	17	31	
	Soutpan	6	0	
	Verkeerdevlei	0	0	
	Lugenhoverpark	1	0	
Sub-total		1445	269	16%
		Attendances	**Defaulters**	**Default rate (%)**
B	All clinics	x	x	
Sub-total		0	0	0%
		Attendances	**Defaulters**	**Default rate (%)**
C	Mobiles	x	x	
	Bothaville	x	x	
	Kgotsong	x	x	
	K Maile	x	x	
Sub-total		0	0	0%
		Attendances	**Defaulters**	**Default rate (%)**
D				
	Vtrkkr Clinic	237	51	
	Viljkroon PHC	27	11	
	Rammolutsi	18	4	
	Viljkroon LA	10	0	
	Ngwathe	5	1	
	Zamdela	63	5	
	Frankfort	x	x	
	Namahabi	86	15	
	Tweeling	35	2	
	Parys	49	0	
	Tumahole	78	35	
	Metsimaholo	7	0	
	Heilbron	2	0	
	Siza Bantu	9	4	
	Relebohle	16	2	
	Sadersville	14	0	
	Maphiri	18	0	
	Villiers	3	0	
	Qalabotjha	14	0	
	Phedisong	25	2	
	Koppies	21	7	
	Vredefort	44	0	
	Deneysville	27	3	
Sub-total		808	142	15%
		Attendances	**Defaulters**	**Default rate (%)**
E				
	Tshiame B	16	4	
	PO Harrismith	30	4	
	PHC Harrismith	12	3	
	Lesedi	39	1	
	PO Warden	3	0	
	Ezenzeleni	11	0	
	PO Vrede	4	1	
	Tsepo Themba	12	0	
	Bophelong	40	4	
	PHC Vrede Mobile	1	1	

		Zomani	15	4	
		PO Memel	2	0	
		PO Cornelia	5	0	
	Sub-total		190	22	10%
			Attendances	**Defaulters**	**Default rate (%)**
	F	All clinics	x	x	
	Sub-total		0	0	0%
Total (Clinics & CHCs)			2443	433	15%
Total (Community & Hosp OPD)			3959	646	14%

N. Cape	**Hospital OPD**	Name	**Attendances**	**Defaulters**	**Default rate (%)**
	Psych hosp	West End	242	45	
	Sub-total		242	45	16%
Total (Hospital OPD)			242	45	16%

	Community Region	Name of clinic	**Attendances**	**Defaulters**	**Default rate (%)**
	Upper Karoo				
		De Aar	104	42	
		Britstown	18	3	
		Carnovan	50	14	
		Colesberg	30	11	
		Hanover	10	1	
		Petrusville	19	3	
		Richmond	17	4	
		Noupoort	13	9	
		Prieska	67	11	
		Hopetown	59	8	
	Sub-total		387	106	22%
			Attendances	**Defaulters**	**Default rate (%)**
	Lower Orange				
		Upington	461	266	
		Kakamas	50	6	
		Keimoes	61	10	
		Kenhardt	41	5	
	Sub-total		613	287	32%
			Attendances	**Defaulters**	**Default rate (%)**
	Hantam	All clinics	60	15	
	Sub-total		60	15	20%
			Attendances	**Defaulters**	**Default rate (%)**
	Namaqualan	All clinics	100	25	
	Sub-total		100	25	20%
			Attendances	**Defaulters**	**Default rate (%)**
	Kalahari				
		Posmasburg	48	15	
		Dingleton	9	1	
		Kuruman	66	17	
		Olifantshoek	30	5	
	Sub-total		153	38	20%
			Attendances	**Defaulters**	**Default rate (%)**
	Diamond Fields				
		Galeshewe	259	64	
		Betty Gaetsewe	253	47	

	Planbou	216	47	
	Beaconsfield	66	14	
	Florianville	256	56	
	Pescodia	133	25	
	Delpoortshoop	46	5	
	Barkly West	67	19	
	Yonder	104	2	
	Jannie Brink	19	1	
	Douglas	76	14	
	Griquatown	41	9	
	Cambell	10	3	
	Niekerkshoop	14	2	
	Jannie Brink	19	1	
	Ganspan	12	2.5	
	Warrenton	107	21	
	Hartswater	44	10	
	Darrielskuil	34	9	
	Ritchie	55	8	
Sub-total		1831	359.5	16%
Total (Clinics & CHCs)		3144	830.5	21%
Total (Community & Hosp OPD)		3386	875.5	21%

E. Cape	**Hospital OPD**	**Name**	**Attendances**	**Defaulters**	**Default rate (%)**
	Psych hosp	Elizabeth Donkin	8360	440	
		Umzimkulu	1430	40	
		Tower	528	66	
		Fort England	6490	733	
		Komani	143	x	
	Sub-total		16951	1279	7%
			Attendances	**Defaulters**	**Default rate (%)**
	General Hos	Frere	x	x	
		C.M.H	89	x	
		Umtata	1565	35	
		Dora Nginza	x	x	
	Sub-total		1654	35	2%
			Attendances	**Defaulters**	**Default rate (%)**
	District Hosp	Uitenhage	0	0	
		PHPE	0	0	
	Sub-total		0	0	0%
Total Hospital OPD attendances			18605	1314	7%

Community	**Region**	**Name of clinic**	**Attendances**	**Defaulters**	**Default rate (%)**
	Umzimkulu	Gugwini	25	19	
Note: Community attendance rates in this province are not based on these figures, but on an average of the monthly visits for January and February 1998, shown below	Sub-total		25	19	43%
	E	Ibisi	55	10	
	Sub-total		55	10	15%
	A	All clinics	x	x	
	B	All clinics	x	x	
	C	All clinics	x	x	
	D	All clinics	x	x	

Total monthly visits (Jan-Feb, 1998)	7643.5	740	
Total Clinic and CHC Attendances	7643.5	740	9%
Total (Clinic and Hosp OPD attendances)	26248.5	2054	7%

W. Cape	Hospital OPD	Name	Attendances	Defaulters	Default rate (%)
	Psych hosp	Valkenberg	1100	x	
		Stikland	1657	x	
		Lentegeur	1364	60	
	Sub-total		4121	60	1%
	General Hos	Groote Schuur	500	135	
		Victoria Hospital	x	x	
		Tygerberg	500	40	
		Red Cross	295	38	
	Sub-total		1295	213	14%
			Attendances	**Defaulters**	**Default rate (%)**
	District Hosp	Ceres	0	0	
		Robertson	0	0	
		Montagu	0	0	
		Caledon	0	0	
		Hermanus	0	0	
		Bredasdorp	0	0	
		Swellendam	0	0	
		Riversdale	x	x	
		Uniondale	0	0	
		Laingsburg	0	0	
		Prins Albert	0	0	
		Beaufort West	0	0	
		Murraysburg	0	0	
		Mosselbay	x	x	
		George	x	x	
		Knysna	x	x	
		Oudtshoorn	x	x	
	Sub-total		0	0	0%
Total (Hospital OPD)			5416	273	5%

Community	Region	Name of clinic	Attendances	Defaulters	Default rate (%)
	Metropol				
	District	1	517	19	
		2	266	38	
		3	916	379	
		4	372	42	
		5	2250	279	
		6	757	122	
		7	565	114	
		8	1520	212	
		9	176	23	
		10	562	65	
		11	x	x	
	Sub-total		7901	1293	14%
			Attendances	**Defaulters**	**Default rate (%)**

Southern C	All Clinics			
	Heidelberg	100	15	
	Riversdal	82	5	
	Stilbaai	15	2	
	Albertinia	20	3	
	Mosselbay Mobiles	60	3	
	Mosselbay clincs	100	8	
	Grootbrakrivier	43	4	
	George Mobiles	114	15	
	George clinics	187	23	
	Knysna Mobiles	211	15	
	Knysna clinics	90	9	
	Plettenberg Bay	49	5	
	Calitzdorp	39	1	
	De Rust	13	0	
	Dysselsdorp	105	3	
	Haarten	12	7	
	Herold	11	0	
	Ladismith	38	0	
	Zoar	85	7	
	Oudtshoorn Mobiles	33	1	
	Uniondale	31	5	
	Oudtshoorn clinics	120	x	
	B. West clinics	0	0	
	B. West Mobiles	1	0	
	Klaarstroom	0	0	
	Laingsburg	40	0	
	LeeuGamka	41	0	
	Merweville	7	0	
	Murraysburg	19	0	
	Nelspoort	0	0	
	Prins Albert	28	0	
Sub-total		1694	131	7%
		Attendances	**Defaulters**	**Default rate (%)**
Westcoast/V	All clinics	1554	390	
Sub-total		1554	390	20%
		Attendances	**Defaulters**	**Default rate (%)**
Boland Overberg				
	Heidehof	9	0	
	Bergsigkliniek	46	8	
	Caledon	29	0	
	Genadendal	42	4	
	Greyton	14	3	
	Grabouw	55	7	
	Pineview	61	8	
	Groenland	5	0	
	Silwerjare	7	0	
	Hermanus	97	10	
	Hawston	50	0	
	Huis Lettie Theron	10	0	
	Zwelihle	31	0	
	Kleinmond	51	4	
	Mount Pleasant	50	0	
	Stanford	22	3	
	Villiersdorp	72	3	

Regina	5	0	
Rust en Vrede	5	0	
Gansbaai	39	1	
Berg 'n See	10	0	
Botrivier	15	2	
Gouda	17	0	
Lady Ella Saron	18	16	
Montana	40	13	
Tulbagh	19	11	
Bella Vista	63	12	
Zweletemba	78	7	
Touwsriver	43	5	
De Doorns	49	19	
Rawsonville	16	6	
De Wet	10	3	
Orchard	17	2	
Sandhills	11	0	
Brandwacht	25	0	
Bossieveld	13	0	
Op die Berg	24	12	
Wolsley	24	8	
Prins Alfred Hamlet	16	5	
Esperanto	16	3	
Platulei	14	3	
Annie Brown	35	7	
PG Strauss	3	0	
Maudie Kriel	1	0	
Warm Bokkeveld	30	5	
Maria Pieterse	279	68	
Worcester 1	54	8	
Worcester 2	64	4	
Worcester 3	53	1	
Huis Andries Hammar	3	0	
Nuwerus	23	0	
Huis Brevis	14	0	
Nasorg vir dowes	19	0	
Werkswinkel vir blinde	34	1	
Robertson	40	10	
Hagar 1	26	7	
Hagar 2	20	12	
Nkqubela	15	5	
McGregor	10	4	
Huis Le Roux	4	0	
Bonnievale	32	4	
Herfsvreugde Tehuis	x	0	
Ashton Mun	36	3	
Kogmanskloof	40	5	
Montagu Mun	34	2	
Victoria	35	5	
Ashbury	23	2	
Huis Uitvlugt	2	0	
Suurbraak	22	2	
Swellendam	86	4	
Sub-total	2275	337	13%
Total (Clinics & CHCs)	13424	2151	14%

Total (Community & Hosp OPD)	18840	2424	11%

KZN	Hospital OPD	Name	Attendances	Defaulters	Default rate (%)
	Psych hosp	Fort Napier	110	4	
		Town Hill	330	11	
		Ekuhlengeni	0	0	
		Madadeni	2596	840	
	Sub total		3036	855	22%
			Attendances	**Defaulters**	**Default rate (%)**
	General Hos	Addington	900	65	
		King George V	790	65	
		King Edward VIII	680	70	
		Ngwelezane	366	61	
		Edendale	201	X	
		Prince Mshiyeni	800	150	
	Sub total		3737	411	10%
			Attendances	**Defaulters**	**Default rate (%)**
	District Hospitals				
	A	Murchison	36	X	
		Port Shepston	X	X	
		GJ Crookes	22	X	
		St Andrews	X	X	
	B	Northdale	100	X	
		Greytown	X	X	
		St Appolinaris	X	X	
	C	Ladysmith	120	X	
		Estcourt	X	X	
		Emmaus	X	X	
	D	Benedictine	X	X	
		St Francis	X	X	
		Ceza	X	X	
		Itshelejuba	X	X	
	E	Bethesda	X	X	
		Manguzi	X	X	
		Mosvold	X	X	
		Mseleni	X	X	
	F	Clairwood	X	X	
		Mahatma Gandi	X	X	
		Osindisweni	X	X	
	G	Newcastle	X	X	
		Charles Johnson	X	X	
		Church of Scotland	X	X	
		Dannhauser	X	X	
		Dundee	X	X	
		Utrecht	X	X	
	H	Empangeni	X	X	
		Ekombe	X	X	
		Catherine Booth	X	X	
		Eshowe	X	X	
		Mbongolwane	X	X	

		Stanger	X	X	
		Hlabisa	X	X	
	Sub total		0	0	0%
Total (Hospital OPD)			6773	1266	16%

Community	**Region**	Name of clinic	**Attendances**	**Defaulters**	**Default rate (%)**
	A	Matatiele clinics + mol	120	20	
		Jolivet	100	x	
		Dududu	100	x	
		Philani	10	x	
		Dlangezwa	10	x	
	Sub-total		340	20	6%
	Not stated	Ntabeni	79	15	
		Gcilima	47	10	
		Ludimalo	34	12	
		Gamalakhe	61	14	
		Bomela	42	19	
		Ezingolweni	194	56	
		Xhamini	22	9	
		Pisgan	25	6	
		Thonjeni	10	2	
		Elim	111	35	
		Mobile I	8	3	
		Mobile II	23	5	
	Sub-total		656	186	22%
			Attendances	**Defaulters**	**Default rate (%)**
	A	All clinics	x	x	
	B	All clinics	x	x	
	C	All clinics	x	x	
	D	All clinics	x	x	
	E	All clinics	x	x	
	F	All clinics	x	x	
	G	All clinics	x	x	
	Total (Clinics & CHCs)		996	206	17%
Total (Community & Hosp OPD)			7769	1472	16%
Grand total (national)			**108144**	**13665**	11%

Appendix E.

A model for calculating mental health service and resource needs for people with severe psychiatric conditions in South Africa

Step 1

Hypothetical population of an average district or region
100000

Age distributions	%	Total
Under 15 years	36.35	36350
15 years and over	63.65	63650

Step 2

Prevalence of severe psychiatric conditions

Disorders	One year prevalence (%)	Total number expected in population	Expected % of severe cases	Expected number of severe cases	Prevalence of severe cases
Non-affective psychosis #	0.5	318	100	318	0.0031825
Bipolar affective disorder	1.3	827	100	827	0.0082745
Major depression	10.3	6556	20	1311	0.0131119
Anxiety disorder ##	17.2	10948	5	547	0.0054739
PTSD ###	x	x	x	x	
Substance-induced psychosis ###	x	x	x	x	
Brief psychotic disorder ###	x	x	x	x	
Total	29.3	18649	x	3004	0.0300428

Nonaffective psychosis includes schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder and atypical psychosis.

Anxiety disorder includes panic disorder, agoraphobia without panic disorder, social phobia, simple phobia and generalised anxiety disorder.

Posttraumatic Stress Disorder (PTSD), substance induced psychosis and brief psychotic disorder are not reported in the NCS study. Calculated prevalence is therefore an underestimation of the likely prevalence of severe psychiatric conditions.

Step 3 **Mental health service needs (at 30% and 100% levels)**

Ambulatory care: annual attendances						
Total prevalence	Target population	Coverage #	Minimum annual visits per person	Total annual visits for population ##	Utilisation rate per person per year ###	
0.03	63650	0.3	12	6884	0.07	(30% coverage)
0.03	63650	1	12	22947	0.23	(100% coverage)

Rispel, Price & Cabral (1996) recommend two levels of coverage: 30% (0.3) and 100% (1.0)
Total annual visits = (prevalence*target population*coverage*minimum annual visits per person)
Utilisation rate per person per year = total ambulatory care visits per year/total population

BEDS NEEDED		Acute inpatient care			
Disorders	**Expected number of severe cases**	**% in need of acute inpt care per year**	**ALOS # (Acute)**	**Rotation factor ## (acute)**	**Acute beds ###**
Non-affective psychosis	318	50	21	1.15	11
Bipolar affective disorder	827	30	14	1.15	11
Major depression	1311	5	30	1.15	6
Anxiety disorder	547	5	2	1.15	0
PTSD	x	x	x	x	x
Substance-induced psychosis	x	x	x	x	x
Brief psychotic disorder	x	x	x	x	x
Total	3004	x	17	x	28

ALOS = Average length of stay
Rotation factor allows for a period when the bed is unoccupied between discharge and new admission. The WHO model recommends rotation factors of 1.15 (acute) and 1.05 (med-long), implying bed occupancy rates of 85% and 95% respectively.
Beds = number of severe cases*(% needing hospitalisation in a year/100)*(ALOS/365)*rotation factor

Med-long inpatient care				Admissions ####			Community/ hospital ratio for patients #####
% in need of med-long inpt care per year	ALOS # (med-long)	Rotation factor ## (med-long)	Med-long beds ###	Annual admission rate for acute facilities in the region/ district	Annual admission rate for med-long stay facilities in the region/ district	Weighted mean annual admission rate	
5	180	1.05	8				
0.5	180	1.05	2				
0	0	1.05	0				
0	0	1.05	0				
x	x	x	x				
x	x	x	x				
x	x	x	x				
x	180	x	10	516	20	381.15	98%

ALOS = Average length of stay

Rotation factor allows for a period when the bed is unoccupied between discharge and new admission. The WHO model recommends rotation factors of 1.15 (acute) and 1.05 (med-long), implying bed occupancy rates of 85% and 95% respectively.

Beds = number of severe cases*(% needing hospitalisation in a year/100)*(ALOS/365)*rotation factor

Annual admission rate = (number of beds*bed occupancy rate*365)/ALOS

Community/hospital ratio for patients = (annual attendance rate/(annual attendance rate+annual admission rate)

Step 4 **Human resource requirements**

Human resources for ambulatory care

Total annual visits	DPV#	Working days per year	Staff working days per year ##	Consultations per day ##	FTE ###	FTE (Home visits and outreach)	Total FTE
6884	26	264	225	11	2.78		
22947	87	264	225	11	9.27	2.78	12

DPV = Daily Patient Visits = (annual visits/number of working days per year (264)) ie average number of patients who use ambulatory care services in one day.

Figures drawn from South African workload studies at PHC (Rispel, Price & Cabral, 1995).

Staff working days per year were calculated after holidays and sick leave.

Consultations per day were calculated using an assumption of 44.3% of staff time in direct patient contact, based on observations of work patterns. The remainder of the time is spent on administration, preparation, meetings,continuing education, tea/lunch, and time without specific activity. This figure is comparable to the national mean DPV per 100 000 (of 13), reported in the provincial services questionnaire.

FTE = (DPV/Consultations per day)*(Working days per year/staff working days per year)

Ambulatory care FTE staff breakdown #

Psychiatric nurses ##	General nurses	OT	OTA	Social Worker	Psychologists	Psychiatrists	Reg/MO	Total FTE
2	5	0.5	1.5	1	1	0.25	0.75	12

Relative distribution according to WHO proposals, with additional emphasis on rehabilitation staff via home visits and outreach.
Distribution of nursing staff between psychiatric, general professional, enrolled and assistant nurses needs to be developed in future.

Human resources for acute inpatient care unit #

Beds	Unit Head (Psychiatrist)	Psychiatrists	Reg/MO	Social Worker	Nurses ##	Total Clinical Staff
28	0.5	0.5	1.0	1.0	14	17

Approximately 10 admissions per week, with ALOS = 17 days. Again, staff distribution follows WHO proposals.
WHO model recommends a nurse/bed ratio of 0.5 for medium-long stay facilities

Human resources for med-long stay inpatient care (Unit serving 5 regions/districts)

Beds	Unit Head (Psychiatrist)	Reg/MO	Psychologist	Social Worker	OT	OTA	Nurses ##	Total Clinical Staff
52	0.5	1.0	1.0	1.0	0.5	2.0	16	21

The WHO model recommends a nurse/bed ratio of 0.3 for medium-long stay facilities

Human resources for med-long stay inpatient care (per region/district served)

Beds	Unit Head (Psychiatrist)	Reg/MO	Psychologist	Social Worker	OT	OTA	Nurses ##	Total Clinical Staff
10	0.1	0.2	0.2	0.2	0.1	0.4	3.1	4

Managerial requirements for the region/district #

Mental health coordinator	Nurse manager	Ombuds-person ##	Information/ Education officer ##	Total managemt staff
0.2	1	0.2	0.5	1.9

Figures drawn directly from WHO model's managerial requirements, converted to the population for a region/district
These functions can be fulfilled by any level of qualified mental health professional

Staff/bed and staff/DPV ratios

Type of professional	Acute inpatient care	Med-long stay inpatient care	Ambulatory care (staff/DPV)#
Nurses	0.50	0.30	0.27
OT		0.01	0.02
OTA		0.04	0.06
Social Workers	0.04	0.02	0.04
Psychologists		0.02	0.04
Psychiatrists	0.04	0.01	0.01
Reg/MO	0.04	0.02	0.03
Education/Info			
Ombudsperson			
Total	0.61	0.42	0.46

DPV figure is at 30% coverage, ie 26 (approximating current utilisation)

Total human resources required for the region/district

Type of professional	Acute inpatient care	Med-long stay inpatient care	Ambulatory care	Managerial	Total	Ambulatory percentage (community/ hospital ratio for staff)
Nurses	14	3.1	7.0	1	25.1	
OT		0.1	0.5		0.6	
OTA		0.4	1.5		1.9	
Social Workers	1.0	0.2	1.0		2.2	
Psychologists		0.2	1.0		1.2	
Psychiatrists	1.0	0.1	0.3	0.2	1.5	
Reg/MO	1.0	0.2	0.8		1.9	
Education/Info				0.5	0.5	
Ombudsperson				0.2	0.2	
Total	17	4.3	12	1.9	35.2	34%

Appendix F. Norms Manual

Preface

Who is this manual for?

This norms manual is designed to be read by provincial mental health coordinators, district health managers, hospital managers, and all those involved in the planning and management of public mental health services in South Africa.

Its goals are (1) to introduce a set of norms into mental health service planning and delivery, and (2) to assist provincial mental health coordinators, district health managers and hospital managers to assess, plan and monitor mental health services according to the proposed norms.

How to use this manual

This manual is a user-friendly tool which allows you to compare local mental health services with the national baseline and target norms

This manual is designed as a practical, interactive tool. The main content is to be found in Chapter 3, which provides a step-by-step guide to assessing, planning and monitoring the mental health service in your province, region or district. By filling in the indicators from your own service as instructed, you will be able to compare mental health services in your area with the national baseline and target norms.

The introduction and first 2 chapters provide a background to understanding norms and their use. The introduction defines norms, standards and indicators, describes the scope of this manual and explains the use of baseline and target norms. Chapter 1 outlines the vision of mental health care in the post-apartheid era. Chapter 2 describes a model for estimating the services needed for people with severe psychiatric conditions and calculates target norms according to this model.

Introduction

What are norms?

Norms are acceptable levels of mental health care.

In this manual, ***norms*** are acceptable levels of mental health care. Using numbers, they describe a minimum acceptable level of health care for people with severe psychiatric conditions (SPC).

There are various ways of measuring an acceptable level of care or rate of service provision. One example is the number of acute psychiatric beds available for the population being served. Others are the rate at which patients are admitted to psychiatric hospitals every year, or the rate at which they attend primary health care (PHC) clinics.

No single norm can assess whether the service is acceptable. For example, to state that there are enough psychiatric beds in a province does not imply that the service is adequate. A service also needs effective community-based care. It is therefore essential to ensure that a range of different norms are in place to monitor a service in a holistic and effective way.

No single norm can assess the entire mental health service.

Norms refer to how the service should be delivered. But in order to be useful, norms need to be linked to the way in which services work in reality. In order to do this, it is necessary to find measures or ***indicators*** that describe how the mental health service actually works. Indicators are measured in the same way as norms, for example by working out the number of acute psychiatric beds which are available to serve a particular population, say the population of a province.

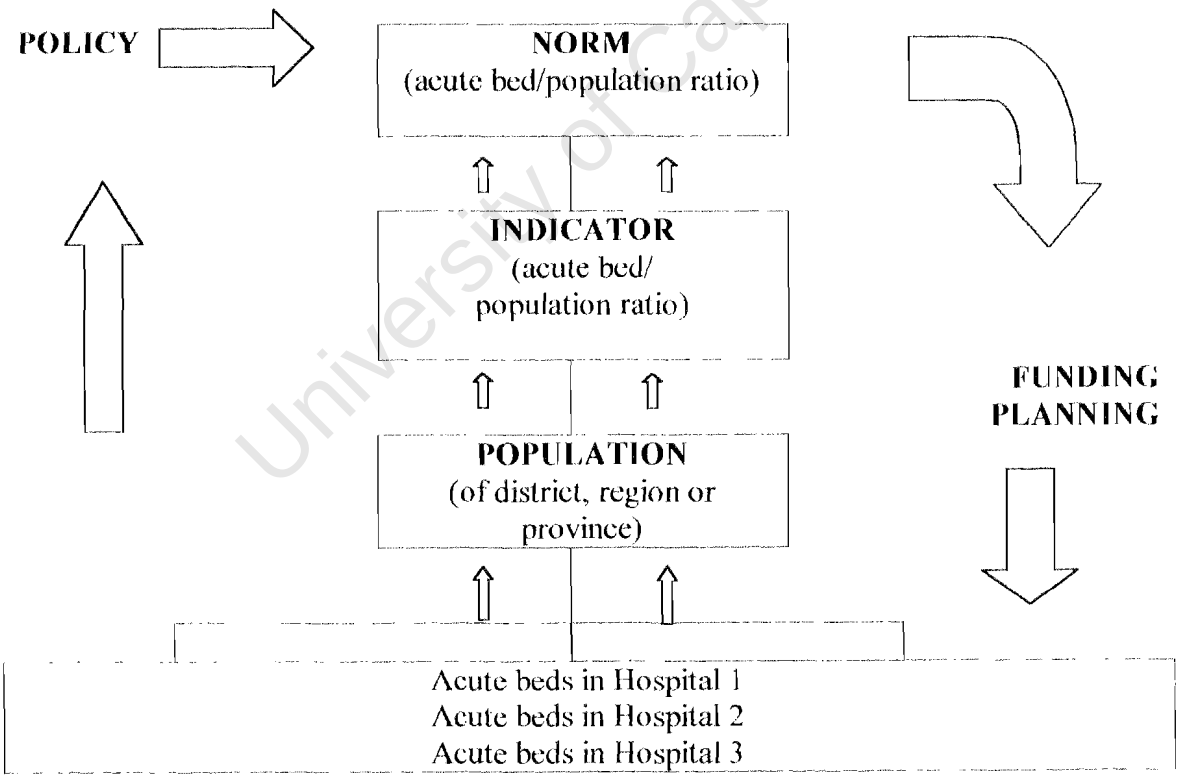
Indicators are measures of how the mental health service is working.

The only difference between norms and indicators is that norms describe how the service *should be* functioning, whereas indicators describe how it *is* functioning.

The difference between norms and indicators is that norms describe how the service should be functioning, whereas indicators describe how it is functioning.

Figure 1 shows the relationship between norms, indicators and policy.

Figure 1. Norms, indicators and service planning



Norms and indicators: an illustration

Let's take an example which illustrates the relationship between norms and indicators. There are 7 acute psychiatric beds for every 100 000 people in the Northern Cape (55 beds for the whole province). This is a useful indicator of the available inpatient care for the people in that province. The Norms and Standards project recommended that there should be a baseline norm of 13 and a target norm of 28 acute beds per 100 000 population. This indicator shows how far acute inpatient mental health care in the Northern Cape falls below these norms.

Why do we need mental health norms?

Norms are helpful for the following reasons:

- Norms and indicators measure the extent to which a mental health service is achieving its *goals*
- If we link norms to indicators it is possible to *measure inequities* between communities, districts and provinces
- Norms make it possible to *estimate* what *resources* would be needed to redress existing inequities
- Norms and indicators promote the *efficient* use of resources
- Norms can be used to motivate for more appropriate *funding* for services for severe psychiatric conditions
- Norms and indicators are useful *management tools* which assist in decentralisation and empowerment of mental health managers

Scope of the norms

These norms are for the delivery of mental health services to people with *severe psychiatric conditions* (SPC). People with SPC are defined as having an "absolute need"[i] for care: "those who require hospitalisation or would require hospitalisation if adequate community services were not in place".[ii] This includes:

SPC = severe psychiatric conditions

- People with *severe chronic* psychiatric conditions such as schizophrenia and bipolar affective disorder. People with such conditions usually require short term admission followed by ongoing support and management in the community. A small percentage of these patients require long term inpatient care.
- People who require short term hospitalisation for the management of *acute* psychiatric problems such as suicide attempts, brief psychoses or panic attacks.

Research from various sources[ii] indicates that this patient population constitutes approximately **3%** of the general population of the country. Although this may appear to be a relatively small number of people, the intensive nature of the care required for these patients demands

considerable resources and careful planning. Poorly planned services can lead to wasteage of scarce resources and/or inhumane treatment of patients.

For the purposes of this manual, people with SPC do not include:

- People with mental handicap, substance abuse or forensic problems (except where there is a co-morbid severe psychiatric condition)
- Infants, children and adolescents below 15 years of age
- People receiving services in the private sector

What this manual is not

1. This manual **does not address standards of care**, which are statements about the quality of mental health care. The difference between norms and standards is that norms refer to levels of care and can be measured by numbers, whereas standards refer to the quality of care. Obviously the level of care affects the quality, but quality is not the main focus of this manual. To view the provisional National Standards of care for SPC, please consult the Norms and Standards report.

This manual does not cover standards of care.

2. This manual **does not provide specific instructions for the planning, budgeting and delivery of mental health services.** It provides a provisional set of national norms, and aims to highlight the existing inadequacies in services for mental health care, relative to this norm. Specific planning and budgeting can only be done based on a thorough assessment of local need and local services. Initiatives which train local service managers in these skills are well positioned to assist in this next vital step.[iii]

This manual does not provide detailed instructions for planning and budgeting, which must be done at a local level.

   The norms in this manual are therefore a **national guideline which should not be implemented rigidly, but must be adapted according to local need and available local budgets.** When you see the following in the planning tables in Chapter 3, this indicates that the next step of planning, budgeting and implementation should be taken by local services:

   ⇨ Budgeting, planning and implementation

Setting acceptable norm levels: baseline and target norms

It is impossible to set a single national norm for the entire country, because of the substantial differences in levels of mental health care in different areas. After a thorough process of consultation with provincial mental health coordinators and key mental health service role players, it was proposed that two levels be set: baseline norms and target norms.

It is important to understand that baseline and target norms are not only different levels of care, but are calculated using quite different methods.

Baseline norms

A baseline norm is, as a rule, guided by the **national average of existing service indicators** (for example the national average bed/population ratio). At a fundamental level, therefore, the goal of the baseline norm is the establishment of national *equity*. This implies that provinces with ratios below this level offer an unacceptably low level of service.

A baseline norm is guided by the national average and has the goal of establishing equity.

Where appropriate, baseline levels have been modified by qualitative observations during the provincial workshops and recommendations of provincial mental health coordinators for their provinces.

If a province falls above the baseline norm, **this does not imply that it is adequately serviced**. The findings of the norms and standards project show clearly that South African mental health services are grossly under-resourced in comparison to other countries with similar levels of economic development. The goal of the baseline norm is simply to highlight those provinces and districts which are extremely under-resourced.

If provincial services are above the baseline norm, this does not mean that the service is adequate.

Target norms

The first principle of target norms is that they are **estimations of *need***. It is clear from research[ii] that the need for mental health services is not being met in this country. Target norms or benchmarks, are therefore necessary for the *development* of services towards the target of meeting the mental health needs of people with SPC.

Target norms are estimations of need, using the model (in Chapter 2) which calculates services for SPC

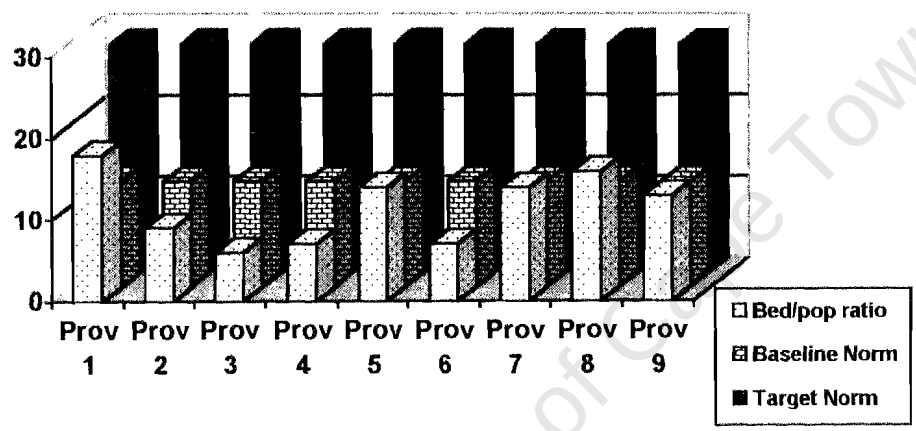
In order to estimate the need for services, a computerised model has been developed which calculates various aspects of service delivery. This model, which is described in Chapter 2, generates all the target norms needed for this manual. The model is based on a model developed by the World Health Organisation (WHO) and adapted according to local needs.

As with baseline norms, target norms have also been influenced by current mental health policies[iv] and by the recommendations of provincial mental health coordinators during the consultation phase of the norms and standards project.

Baseline and Target Norms: An illustration

In Figure 2, using acute bed/population ratios as an example, it is possible to see the enormous differences between levels of care in the 9 provinces. The bricked columns represent the Baseline Norm (or national average). The light columns in the front row show the existing levels of care (or indicators). It is clear that in relation to the Baseline, there are shortfalls in services in provinces 2,3,4 and 6. The Target Norms, represented by the dark columns, show how far all provinces need to develop to cover the needs of SPC patients for acute care.

Figure 2: An illustration of the relationship between existing service indicators for each province, and baseline and target norms.



Chapter 1
A NEW VISION FOR MENTAL HEALTH CARE

During the apartheid era, mental health services suffered from poor planning, racial inequities, fragmentation and inadequate budgets. People with severe psychiatric conditions were frequently treated for long periods of time in large centralised institutions, and conditions were inhumane for many patients. Change is long overdue. The new constitution has enshrined the rights of all people in law, regardless of race, gender, age or disability. This requires the urgent transformation of mental health services in South Africa.

The vision for a new mental health service has been articulated in the *White paper for the transformation of the health system in South Africa*[iv], which states: "a comprehensive and community-based mental health service should be planned and coordinated at the national, provincial, district and community levels, and integrated with other health services."

The vision for the transformation of the mental health system includes:

- a community-based service
- a comprehensive, integrated service
- a performance-driven service
- an affordable service
- adequate resources and decision-making power for those who plan and manage mental health services
- the need to monitor the quality of care in both hospitals and the community, associated with increased concern for the rights and needs of patients.

A community-based service means that although many patients with SPC may require hospital admission for short periods of time, the majority of care needs to be delivered in the community, with a strong emphasis on psychosocial rehabilitation.

These changes are consistent with changes in mental health care around the world. Since the 1950s, with improved pharmacotherapy for severe psychiatric conditions, and a growing demand to respect the rights and needs of people who suffer from these conditions, there has been large scale reduction in the size of psychiatric institutions. This movement, known as *deinstitutionalisation*, has shown that it is possible to care for patients in a more humane (and possibly more cost-effective) manner, by caring for them in the community.

In spite of deinstitutionalisation, there is an ongoing need for psychiatric beds.

But it has also shown that there is an **ongoing need for psychiatric beds**, both for the short term management of acute psychiatric conditions, and in certain unusual cases, for the long term care of people with SPC who are either a danger to themselves or a danger to others in the community.[ii] And in order to ensure that the limited numbers of psychiatric beds in the service are not over-run, there is a **need for well trained, skilled primary care staff who can support and maintain patients in the community** in order to prevent unnecessary relapse and admission.

The implementation of a cost-effective, humane, community-based, integrated and comprehensive mental health service therefore requires a delicate balancing of limited resources between hospital and community care.

Mental health care requires a careful balance between hospital and community services.

The following model was developed during the norms and standards project to calculated resource needs in keeping with this vision.

Chapter 2
A MODEL FOR CALCULATING NORMS AND REQUIRED HUMAN RESOURCES

Introduction

This model calculates the need for mental health services for SPC in South Africa in an average year.

This model estimates the services needed for people with severe psychiatric conditions (SPC) in South Africa during an average year. The model provides the target norms used in chapter 3.

There have been several international attempts in recent years to develop models to estimate mental health service needs and consequent human resource implications of a given population. Historically, the first such attempt was *The Tolkien Report: a description of a model mental health service* developed by Gavin Andrews in New South Wales, Australia.[v] The Tolkien report was written as a response to the successes of managing people with severe psychiatric conditions in community settings, and with a view to restructuring Australian mental health services in this light.

The World Health Organisation[vi] has developed this method with the goal of calculating service needs for national mental health programmes, specifically for people with "severe mental disorders". Locally, the Centre for Health Policy (CHP) at the University of the Witwatersrand has developed *Guidelines for Primary Health Care Services*[vii], which detail community mental health service needs at primary level. In parallel, the *Hospital Strategy Project*[viii] (HSP) has estimated hospital service needs, including bed needs for "chronic care" under which have been included psychiatric care and service needs for tuberculosis. The following model for mental health service needs draws on the methodology of the WHO, the CHP and the HSP, adapting and improving on their shortcomings.

The size and nature of the region/district

The modelling process begins with a hypothetical population. The WHO model sets out the following criteria for choosing the size and nature of the hypothetical population:

a) the population should lie in an authentic "natural" or administrative area;

b) the size should be big enough to make services cost effective while providing a range and variety of services;

c) the population should be small enough to be managed easily; and

d) the services should be easily accessible to all the population, with ease of transport a priority.

In this manual we will use a hypothetical population of **100 000** people for the following reasons.

a) The population of 500 000 used by the WHO is too large for areas in South Africa with low population densities where access to services and transport are limited (for example the entire population of the N.Cape is 746 000).

b) Preliminary guidelines for the catchment population of health services in South Africa recommend 10 000 for clinics and between 100 000 and 180 000 for major health centres providing 24 hour care.[vii] Although exact sizes of districts vary considerably, the figure of 100 000 approximates a district in many instances, except in the Northern Cape, where regions form the smallest sub-division of health management structures, and the population size of regions approximates districts in other provinces.

c) A population of 100 000 is large enough to make services cost effective and provide a range of services, with the possible exceptions of medium-long stay services.

d) Numerically the figure of 100 000 is easy to convert to exact district, regional and provincial figures.

e) Most of the literature on psychiatric bed needs and much of the literature on staffing and admission rates report figures per 100 000 population.

Taking a hypothetical population of 100 000, age breakdowns are the next important step. The population of 15 years and over is particularly important for severe psychiatric conditions since the peak age of onset for schizophrenia in males is 15-25 years.[ix] In South Africa the October 1996 Household Survey[x] indicates that 36.35% of the population is below the age of 15. In the hypothetical population of 100 000, 36 350 people would be below the age of 15, and 63 650 would be 15 years and over.

Prevalence

The next step to ascertaining need is a reliable estimate of the prevalence of severe psychiatric conditions. This manual's norms are directed, like the WHO model, at providing care for patients with severe psychiatric conditions associated with severe functional impairment and disability. To date there have been no national psychiatric epidemiological studies conducted in South Africa, and other African studies have encountered problems with research instruments, procedures, study design, sampling strategy and sampling size.[xi] Furthermore, none of the existing studies

report 12 month prevalence needed for the present modelling exercise.

The WHO model uses morbidity figures from the American National Co-morbidity Survey (NCS).[xii] Several reasons may be found for using these figures in this model:

- the paucity of epidemiological data in South Africa;
- the WHO's recommendation of the NCS study in international settings;
- the fact that the NCS findings report 12-month prevalence rates;
- the fact that the NCS study was conducted relatively recently; and
- the quality of its methodology, including instrumentation, sampling strategy and sample size.

Using the NCS figures in South Africa, one can calculate the number of people with selected disorders among the 63 650 people who are 15 years of age and over in a hypothetical population of 100 000 (Table 2.1).

Using this analysis, it would be expected that in a region/district of 100 000 people, mental health services for severe psychiatric conditions should be available to at least **3004** people (or **3%** of the population) during any given year.

It should be stressed that NCS figures do not include substance-induced psychotic disorder, brief psychotic disorder, mental disorders due to a general medical condition or severe cases of posttraumatic stress disorder (PTSD). The 3% prevalence calculated here is therefore an *under-estimate* of the likely prevalence of severe psychiatric conditions. Nevertheless, this figure is in keeping with international findings which report prevalence of severe psychiatric disorder at 1-3% of the general population.[xiii]

Table 2.1 Expected severe psychiatric conditions, using population 15 years and over.

Disorders	One year prevalence (%)	Total number expected in population	Expected percentage of severe cases[1]	Expected number of severe cases
Non-affective psychosis[2]	0.5	318	100	318
Bipolar Affective Disorder[3]	1.3	828	100	828
Major depression[4]	10.3	6 556	20	1 311
Anxiety disorder[5]	17.2	10 948	5	547
Total	**29.3**	**18 650**	-	**3 004**

Service needs

Having estimated that 3004 people of the 100 000 population are likely to have severe psychiatric conditions, the next step is to calculate service needs.

A crucial component in the calculation of service needs is affordability. Although this model does not include costing of services, an attempt to develop flexible recommendations to allow for varying levels of care and resources is necessary. To this end, two levels of service delivery are recommended in this model. In keeping with the recommendations of the guidelines for PHC services in South Africa,[vii] these are pitched according to levels of coverage at **30%** (a minimum level, below which services would be unacceptable) and **100%** (a goal towards which services should develop). Note that 30% coverage is not the same as the baseline norm. The baseline norm is the average of existing South African services, and does not use this modelling process. **Coverage of 30% and 100% are percentages of the target norm only, ie 100% = the target norm**. For details of the rationale for baseline and target norms, see the Introduction.

Ambulatory or outpatient services needed

This model assumes that most patients with severe psychiatric conditions will have the bulk of their contact with mental health services at ambulatory care facilities.[6,xiv] Three important figures are

[1] Although not all cases of non-affective psychosis and bipolar affective disorder are severe in the formal sense, they are considered severe psychiatric conditions in terms of this manual's definition, ie they would need care from mental health services.

[2] Nonaffective psychosis includes schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, and atypical psychosis.

[3] The figure reported here indicates the prevalence of a manic episode.

[4] The figure reported indicates the prevalence of a major depressive episode.

[5] This includes panic disorder, agoraphobia without panic disorder, social phobia, simple phobia, and generalised anxiety disorder.

[6] This does not necessarily mean contact at primary care level (PHC). For example, current estimations of the spread of patients with severe psychiatric conditions across levels of care in Gauteng are: 15% at

necessary to provide indicators of ambulatory care service needs for the 3004 people with severe psychiatric conditions:

- annual ambulatory care visits,
- utilisation rates, and
- daily patient visits (DPV).

Annual ambulatory care visits

The WHO model provides estimates of ambulatory care contacts, but relative to South African research on mental health needs in ambulatory care, these figures are somewhat inflated.[7] Guidelines for PHC services in South Africa use the following formula to ascertain annual attendances at ambulatory care facilities:

Annual visits =	prevalence × target pop × coverage × min. annual visits/person[8]

Using the above prevalence and population figures, the following numbers of annual visits can be calculated for 2 levels of coverage:

No. of visits = 0.0300428 × 63 650 × 0.3 × 12 = **6 884** (30% coverage)
No. of visits = 0.0300428 × 63 650 × 1.0 × 12 = **22 947** (100% coverage)

Utilisation rates

Using the following formula developed by the Guidelines for PHC services, a utilisation rate per person per year for ambulatory care services can be calculated:

$$\text{Utilisation rate per person per year} = \frac{\text{total ambulatory care visits per year}}{\text{Total population}}$$

Using this formula, utilisation rates of **0.07** (30%) and **0.23** (100%) can be calculated for the population of 100 000 people.

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level 1, 75% at level 2, and 10% at level 3 (see reference). At level 1, services should be prepared to detect severe psychiatric conditions, manage these where appropriate, and refer them to "higher" levels of care if there are insufficient facilities or skills to manage the patient at primary level. At level 2, services should provide specialist care which is able to contain, treat and manage the majority of severe psychiatric conditions. At level 3, services should provide care within psychiatric specialities such as forensics and child/adolescent psychiatry. Because of the current lack of national research into specific levels of care for people with severe psychiatric conditions, these specifications are not possible in this model. Instead global estimations of ambulatory care need are made.

7 The WHO model's proposed attendances at ambulatory care facilities are approximately double those estimated by the South African literature.

8 Rispel et al (1996) recommend monthly visits for "chronic psychiatry" patients, ie 12 visits per annum.

Daily Patient Visits (DPV)

The total annual attendances can be converted to the number of Daily Patient Visits (DPV), namely the average number of patients who make use of an ambulatory care service per day. This is possible by using the following formula:

$$\text{Daily Patient Visits (DPV)} = \frac{\text{Total annual visits}}{\text{Working days per year}}$$

From this formula, a DPV of **26** (30%) and **87** (100%) can be calculated, assuming that there are 264 working days per year. This implies that in the population of 100 000 people, an average of 26 people will use ambulatory care services in one day (at 30% coverage) and 87 people will use ambulatory care services in one day (at 100% coverage). DPV will be used below to calculate ambulatory care human resource needs.

Beds needed

We assume that most patients spend most of their lives outside hospital. However, some hospital beds are needed. In keeping with the WHO model, inpatient services are divided into acute beds (with admission length of up to 3 months) and medium-long stay beds (with longer admissions). Acute beds are designed for short term management of patients in a state of crisis or relapse, with a view to stabilising the patient to a point where treatment can be continued on an outpatient basis. In keeping with the findings in the literature it is assumed that a limited number of medium-long stay psychiatric beds will always be needed for management of severe chronic conditions.[ii]

At this stage no specialist rehabilitation facilities are considered. The short term goal of this model is the calculation of an essential number of inpatient beds and concerted community-based ambulatory care rehabilitation programmes. (The norms in chapter 3 do, however, include community-based residential care).

The WHO model uses the following equation to calculate beds for the 3004 people with severe psychiatric conditions:

$$\text{Beds} = \text{no. of severe cases} \times (\%\ \text{needing hospitalisation})[9] \times (\text{ALOS}[10] \div 365) \times \text{rotation factor}[11]$$

[9] The percentage of people with each condition who need hospitalisation in a year is derived from the estimates in the WHO model.

[10] ALOS – Average Length of Stay, calculated as the median days of admission. ALOS estimates provided in Table 2.2 are derived from the WHO model.

[11] The rotation factor allows for a period when the bed is unoccupied between discharge and a new admission. The WHO model recommends a rotation factor of 1.15 for acute beds, which implies an 85% bed occupancy rate.

Acute beds

From this formula, using the prevalence estimates of 3004 people with SPC for every 100 000 South Africans, the following bed numbers can be calculated for acute care (see Table 2.2). The WHO model concedes that the percentage of patients who will require hospitalisation during a year can be adjusted according to local findings, and do not give a source for their own figures. However, these figures are broadly consistent with the Epidemiologic Catchment Area (ECA) prospective 1-year prevalence rates of disorders and services[xv] which reported that 1% of the population had an inpatient stay for mental health reasons. As with other variables, if valid and reliable data are reported in South Africa, these may be substituted for the figures used here.

Table 2.2 Beds needed for acute psychiatric care per 100 000 population

Condition	Expected number of severe cases	Percentage in need of acute hospitalisation per year (%)	ALOS (Average length of stay in days)	Rotation factor	Beds
Non-affective psychosis	318	50	21	1.15	11
Bipolar affective disorder	828	30	14	1.15	11
Major depression	1 311	5	30	1.15	6
Anxiety disorder	547	5	2	1.15	0
Total	**3 004**	-	**17**	-	**28**

Medium-long stay beds

The WHO model assumes that 5% of patients suffering from schizophrenia will need medium-long stay beds with an average length of stay of 180 days. To this may be added 0.5% of bipolar patients.[12] The rotation factor is taken to be lower at 5% (1.05), reflecting a higher bed occupancy rate.

[12] The estimated prevalence of 0.5% of bipolar patients is inserted partly in order to add bipolar patients to the picture of medium-long stay care, and partly to do so within estimates in the literature of the percentage of chronic patients who require ongoing long term care. See the Norms and Standards report for a more thorough discussion of research on "new long stay" patients, who continue to require chronic care in spite of the efforts of deinstitutionalisation.

Using the same formula as for acute beds, the following numbers of medium-long stay beds are needed for schizophrenic and bipolar patients alone among chronic psychiatric conditions (Table 2.3).

Table 2.3 Beds needed for medium-long stay psychiatric care per 100 000 population

Condition	Expected number of severe cases	Percentage in need of medium-long hospitalisation per year	ALOS (Average length of stay in days)	Rotation factor	Beds
Non-affective psychosis	318	5	180	1.05	8
Bipolar affective disorder	828	0.5	180	1.05	2
Total	-	-	**180**[13]	-	**10**

Total beds

Combining estimated beds for acute and medium-long stay facilities gives a total of **38 beds per 100 000 population** for patients with severe psychiatric conditions. (30% coverage of these bed numbers yields figures of 3 medium-long stay beds, 8 acute beds and a total of 11 beds per 100 000 population).

Human resource requirements

Having calculated service needs, the final step is to calculate the human resources required to provide the necessary mental health care.

In keeping with the WHO model, human resource calculations refer only to clinical mental health staff. Maintenance, kitchen, laundry, cleaning and administrative staff should be added to the recommended figures.

Full-Time Equivalent (FTE) staff the number of staff who work full-time in mental health care and includes percentages of those staff who spend only some of their time in mental health care.

In the context of an integrated system of health care in South Africa, mental health services will frequently be delivered by a general health worker. To this end, human resources are calculated according to **Full-Time Equivalent (FTE)** staff. The number of FTE staff can be calculated by working out the percentage of time each staff member spends with mental health. For example, if a nurse spends 20% of her/his time in mental health work (including time spent seeing patients, making

[13] Present long term care in South Africa generally involves a much longer average length of stay (ALOS) than that recommended by the WHO. This norm (which informs the target norm in chapter 3) may need to be adjusted as mental health services and information systems develop in South Africa.

referrals, writing case notes, consulting with colleagues), then, for our purposes, s/he is 0.2 of a FTE mental health nurse. It would take 5 such nurses to make up 1 FTE mental health nurse.

Nursing categories are described in terms of function in this manual, according to whether nurses render a psychiatric service or a general nursing service. Unfortunately at this stage the model was not able to provide precise details of nurse staff categories, for example ratios of enrolled nurses to professional nurses. The South African Nursing Council is in the process of developing norms using an accreditation system. In the interim, details of the implications of the norms in this manual need to be worked out according to available local nursing resources and needs.

Nursing categories are defined by their function in this manual.

Human resources for ambulatory care

For ambulatory care services, human resources can be calculated using the following formula:

$$\text{FTE staff} = \frac{\text{DPV} \times \text{working days per year}}{\text{Consultations per day} \times \text{staff working days per year}}$$

FTE = (26×264) ÷ (11 ×225) = 2.78 (30% coverage)
FTE = (87×264) ÷ (11 ×225) = 9.27 (100% coverage)

Figures for these calculations are drawn from South African workload studies at PHC.[vii] Staff working days per year were calculated after holidays and sick leave. Consultations per day were calculated using an assumption of 44.3% of staff time in direct patient contact, based on observations of work patterns. The remainder of the time is spent on administration, preparation, meetings,continuing education, tea/lunch, and time without specific activity. The figure of 11 consultations per day refers to all ambulatory staff, including those who are not in direct contact with patients – on duty staff may well see more than 11 patients on an average day.

These estimations of the number of staff required to care for ambulatory care services for 100 000 people do not cover home visits, follow-ups of missed appointments or outreach. This work is essential within the framework of community-based care with an emphasis on rehabilitation of patients with severe psychiatric conditions. It is estimated that an additional 30% of staff should be provided to fulfill this function for the catchment population. This gives a total of **12 ambulatory care staff** to cover the ambulatory care needs of the 3004 people with severe psychiatric conditions (30% coverage: 4 ambulatory care staff).

Ambulatory care staff breakdown

The following breakdown of the 12 ambulatory care staff according to professions is guided by the recommendations of the WHO model:

- 2 psychiatric nurses
- 5 general nurses
- 0.5 OT
- 1.5 OTA
- 1 social worker
- 1 psychologist
- 0.25 psychiatrists
- 0.75 registrars/MOs

Human resources for acute beds

We have calculated that 28 acute beds are needed (see Table 2.2). This could be considered as a single 28 bed unit. Using the WHO model as a guide, the following staff are needed to serve an acute 28 bed unit (with around 10 admissions per week, each with an average stay of 17 days):

- 1 head of unit (psychiatrist)
- 1 psychiatric registrar/MO
- 0.5 social worker + 0.5 psychologist or
  1 social worker if no psychologist is available
- 14 nurses (nurse/bed ratio: 0.5)

Human resources for medium-long stay beds

The WHO model makes human resource recommendations for a 45 bed medium-long stay unit. The 10 medium-long stay beds per 100 000 calculated earlier could not be served in isolation, since it is important to conceptualise staffing in terms of functional units. The low numbers of medium-long stay beds required for 100 000 people would make it necessary to combine the bed needs of several districts/regions. One scenario could be combining the needs of 5 such districts or regions to make a 50 bed medium-long stay unit. Adjusting the figures from the WHO model accordingly, a total of 21 clinical staff would be needed for such a unit serving 500 000 people, constituted as follows:

- 0.5 head of unit (psychiatrist)
- 1 Reg/MO
- 1 Psychologist
- 1 Social Worker
- 0.5 OTs
- 2 OTAs
- 16 nurses (nurse/bed ratio: 0.3)

Converted to FTE staff per 100 000 population, this would

require staff numbers constituted as follows:

- 0.1 head of unit (psychiatrist)
- 0.2 Reg/MO
- 0.2 Psychologist
- 0.2 Social Worker
- 0.1 OTs
- 0.4 OTAs
- 3.1 nurses (nurse/bed ratio: 0.3)

Managerial requirements for the region/district

The WHO model's recommendations for managerial staff for a population of 500 000 can be adapted to a population of 100 000 as follows:

- 0.2 chief regional mental health professional (of any relevant profession)
- 1 nurse
- 0.2 quality assurance professional (of any relevant profession)
- 1 coordinator of mental health information (of any relevant profession)

Although a quality assurance professional is designated by this model, this does not imply that other personnel should not be involved in quality assurance. Quality assurance remains the responsibility of all mental health personnel, including clinical, administrative and maintenance personnel.

The coordinator of mental health information would fulfil a dual function of assisting in data collection, service planning and monitoring on one hand, as well as education and mental health promotion on the other.

Total human resources needed for a district/region of 100 000 people

Table 2.4 Total human resources needed for a district/region of 100 000 people

Type of professional	Inpatient		Ambulatory care	Managerial	Total
	Acute	Med-long			
Nurses	14	3.1	7	1	25.1
Occupational Therapists	-	0.1	0.5	-	0.6
OTA	-	0.4	1.5	-	1.9
Social workers	1	0.2	1	-	2.2
Clinical Psychologists	-	0.2	1	-	1.2
Psychiatrists	1	0.1	0.25	0.2	1.55
Registrars/MO	1	0.2	0.75	-	1.95
Education/info	-	-	-	0.5	0.5
Ombudsperson	-	-	-	0.2	0.2
Total	**17**	**4.3**	**12**	**1.9**	**35.2**

Chapter 3
A STEP-BY-STEP GUIDE TO ASSESSING, PLANNING AND MONITORING THE MENTAL HEALTH SERVICE USING NORMS

Having outlined a model mental health service in chapter 2, the next stage is to apply the norms to the planning and monitoring of mental health services at district, regional and provincial level. This chapter provides a step-by-step guide to assessing, planning and monitoring the mental health service using norms. The chapter is written in an interactive way and allows you, as a health service manager, to enter information from your own services and plan accordingly.

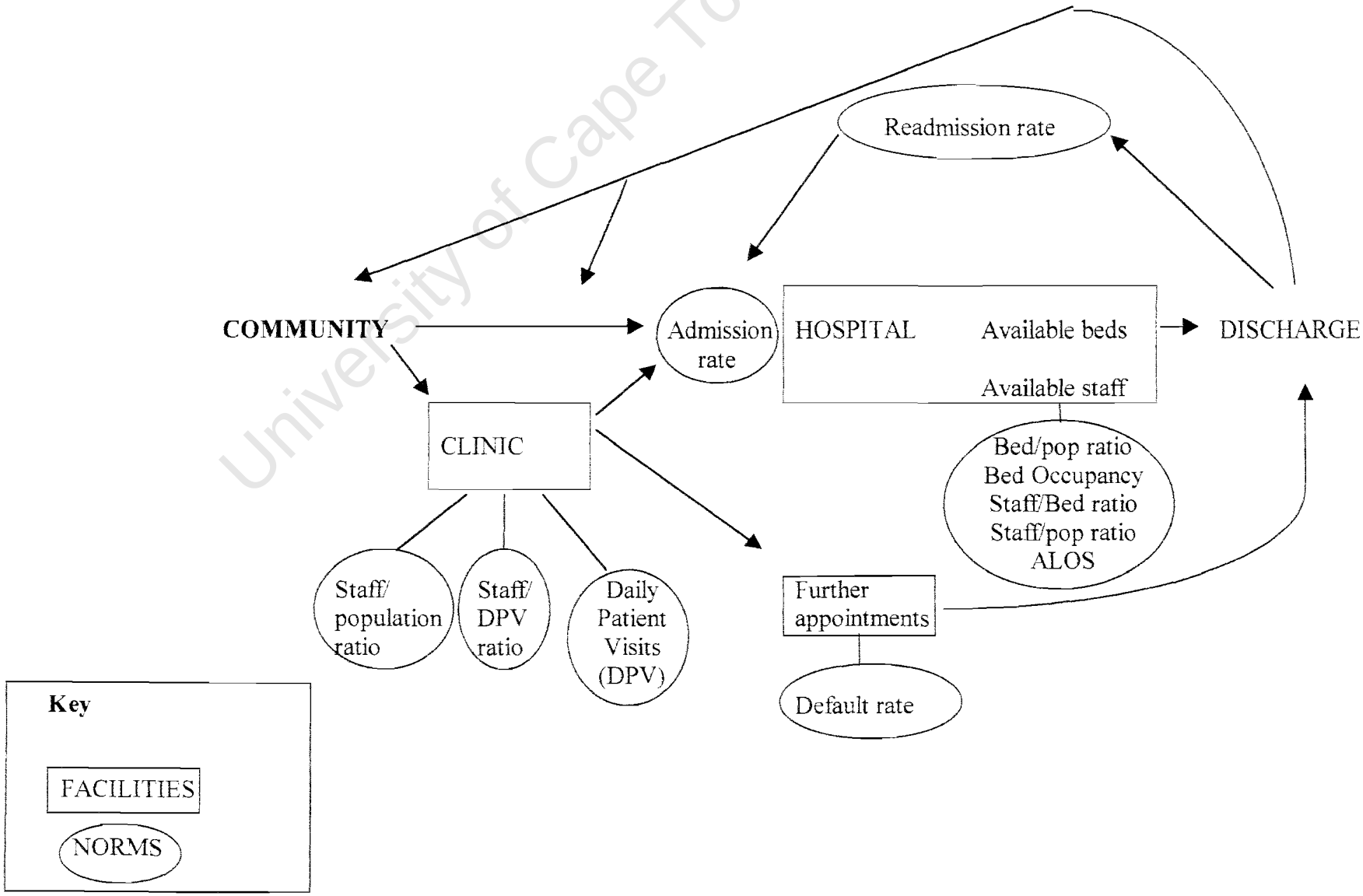
Step 1: Monitoring the service as a whole

The norms in this manual are linked, requiring a holistic approach to service planning.

The norms in this manual are linked and dependent on each other. For example, it is not possible to change the number of acute beds needed for every 100 000 people without changing the number of staff needed, the number of admissions expected, the length of admissions, the number of readmissions, the number of patients seen daily in clinics and OPDs, etc.

For this reason, it is essential that health service planners and managers view their service as a *whole* from the outset. The following flow diagram (figure 3) illustrates the path taken through health services by patients with SPC. The diagram also illustrates the value of the norms and indicators for monitoring the services at various points. In planning service norms, health managers should ensure that each norm is adjusted according to other norms. **Step 6**, below, provides forms and an example of how this may be achieved.

Figure 3. Patient flow diagram, indicating the role of norms in monitoring mental health services



Step 2: Planning for beds

The number of beds available per unit of population is an important basic indicator of the level of inpatient mental health care in a community. Although it has its limitations[xvi] and must be considered alongside acceptable standards (or quality) of care and other norms (especially staffing), it is an important first step in planning care for patients with SPC.

Existing bed numbers in South Africa fall well below international norms.

Existing numbers of psychiatric inpatient beds in South Africa fall well below international norms.[ii] This is in spite of the fact that most developed countries have undergone a thorough process of deinstitutionalisation and presently have a fraction of the number of beds which were available 30-40 years ago. There is therefore an urgent need to improve inpatient care for patients with SPC, while developing community-based care in line with current policies.[xvii,iv]

In this manual:

- Bed/population ratios refer to numbers of *available* beds, not numbers of occupied beds.
- Bed/population norms are recommended for *acute* and *medium-long* stay facilities. Acute facilities are defined by admission lengths of up to 3 months. Medium-long stay facilities admit patients for longer periods.[xviii]
- Because of the variation between provinces, particularly in the level of integration of mental health services into general health care, it is impossible to stipulate the setting of the psychiatric beds. Bed/population ratios are therefore calculated across levels of service delivery. For example, acute psychiatric beds may be present in wards of general hospitals (district or regional) or in dedicated psychiatric institutions. These general recommendations therefore need to be adapted according to local needs.
- The model (see chapter 2) only provides estimates of care for medium-long stay beds in hospitals. It does not estimate care needed in residential care facilities, which are crucial to the long term care of patients with SPC in the community.[xix,xx] On the suggestion of the national meeting of provincial mental health coordinators, 20 community residential care beds per 100 000 should be added to the model's recommendation of 10 beds.[14] It was also suggested that if community residential care facilities are not yet available, hospital beds should be used. In other words, **as an interim measure, 30 medium-long stay beds are required, regardless of whether they are in hospitals or residential care**. Once residential care facilities are developed, hospital bed numbers can be reduced accordingly.

In this manual, bed norms are provided for all service levels. These general norms need to be adapted according to local needs.

Until community residential care facilities are developed, at target level 30 medium-long stay beds are required in either hospital or residential care facilities.

[14] The figure proposed by the National meeting of mental health coordinators correlates broadly with proportions of community-based residential care in the UK and Italy, where the number of community residential beds is at least double the number of medium-long stay beds in hospitals.

The following tables assist you to calculate indicators for acute and medium-long stay psychiatric beds in your district, region or province. It is then possible to compare your indicator with the national baseline and target norms. The table is designed to highlight shortfalls in service provision within existing district, regional and provincial services and to stress the importance of careful planning and budgeting for severe psychiatric conditions.

Calculating indicators and setting service objectives: Acute Psychiatric Beds

Step 1: Calculating the existing service indicator

How many acute psychiatric beds are there in your district, region or province?

What is the total population of your district, region or province?

[ ] ÷ [ ] = [ ] × 100 000

= [ ] This is your indicator (acute bed/population ratio per 100 000 people)

Step 2: Comparing the indicator with the norm

13	28
National Baseline Norm	National Target Norm

Does the indicator for your district, region or province meet the Baseline norm? (tick) Yes [ ] No [ ]

IF NO: **THIS SHORTFALL REQUIRES URGENT ATTENTION**

What is the shortfall in relation to the Baseline norm?

What is the total population of your district, region or province?

[ ] × [ ] ÷ 100 000

= [ ] This is your actual shortfall in acute beds

What are reasonable objectives for increasing bed numbers to make up this shortfall within current budgetary constraints? (Estimate possible increases within the following time periods)

2 years
5 years
10 years

The next step is to identify how finance and resources could be secured within current budget constraints. ⇨ **Budgeting, planning and implementation**

IF YES: Does the indicator for your district, region or province meet the Target norm? (tick) Yes ☐ No ☐

IF NO:

What is the shortfall in relation to the Target norm? × What is the total population of your district, region or province? ÷ 100 000

= This is your actual shortfall in acute beds in relation to the Target norm

What are reasonable objectives for making up this shortfall during the following time periods, within current budgetary constraints?

2 years
5 years
10 years

The next step is to identify how finance and resources could be secured within current budget constraints. ⇨ **Budgeting, planning and implementation**

IF YES: Move on to the next section.

Calculating indicators and setting service objectives: Medium-Long Stay Psychiatric Beds

Step 1: Calculating the existing service indicator

How many med-long psychiatric beds are there in your district, region or province?

What is the total population of your district, region or province?

[ ] ÷ [ ] = [ ] × 100 000

= [ ] This is your indicator (med-long stay bed/population ratio per 100 000 people)

Step 2: Comparing the indicator with the norm

6	30
National Baseline Norm	National Target Norm

Does the indicator for your district, region or province meet the Baseline norm? (tick) Yes [ ] No [ ]

IF NO: **THIS SHORTFALL REQUIRES URGENT ATTENTION**

What is the shortfall in relation to the Baseline norm?

What is the total population of your district, region or province?

[ ] × [ ] ÷ 100 000

= [ ] This is your actual shortfall in med-long beds

What are reasonable objectives for increasing bed numbers to make up this shortfall within current budgetary constraints? (Estimate possible increases within the following time periods)

2 years
5 years
10 years

The next step is to identify how finance and resources could be secured within current budget constraints. → Budgeting, planning and implementation

IF YES: Does the indicator for your district, region or province meet the Target norm? (tick) Yes ☐ No ☐

IF NO:

What is the shortfall in relation to the Target norm? × What is the total population of your district, region or province? ÷ 100 000

= This is your actual shortfall in med-long beds in relation to the Target norm

What are reasonable objectives for making up this shortfall during the following time periods within current budgetary constraints?

2 years
5 years
10 years

The next step is to identify how finance and resources could be secured within current budget constraints. → Budgeting, planning and implementation

IF YES: Move on to Step 3.

Step 3: Planning for Staff

South African mental health services are severely under-staffed.

One of the major findings of the Norms and Standards project was that South African mental health services are severely understaffed. Clinical and management staff reported high levels of burnout and stress in all provinces. There is an urgent need for improved staff resources for mental health care, and training of those general health workers who are expected to provide mental health care within an integrated framework. This needs to be planned carefully, within current budgetary constraints.

This manual uses 3 norms to measure staffing: staff/population norms, which provide a global figure of the number of staff available to serve a given population; staff/bed norms which indicate the number of staff available per bed unit in inpatient settings; and staff/DPV ratios which indicate the number of staff available for the patients who visit ambulatory care services on a daily basis.

Staff/population norms

Staff/population ratios are a useful indicator of the number of staff available to meet the mental health needs of a given population. As with bed/population ratios they need to be supplemented by other indicators and information about the quality of care (or service standards).

Norms are recommended for the following staff categories in this manual:

- Total Nurses
- Psychiatric Nurses
- Occupational Therapists (OT)
- Occupational Therapy Assistants (OTA)
- Social Workers
- Community Health Workers (CHW) (including Community Rehabilitation Workers)
- Psychologists
- Psychiatrists
- Psychiatric Registrars
- Medical Officers (MO)

Full-Time Equivalent (FTE) staff – the number of staff who work full-time in mental health care and includes percentages of those staff who spend only some of their time in mental health care.

As stated in chapter 2, in order to calculate the number of staff working in mental health, it is essential to calculate the **Full-Time Equivalent (FTE)** staff. This is because, within an integrated service, many health workers spend only part of their time delivering mental health care. The number of FTE staff can be calculated by working out the percentage of time each staff member spends with mental health. For example if a nurse spends 20% of her/his time in mental health work (including time spent seeing patients, making referrals, writing case notes, consulting with colleagues), then, for our purposes, s/he is 0.2 of a FTE mental health nurse. It would take 5 such nurses to make up 1 FTE mental

health nurse.

As stated in chapter 2, nursing categories are described by their function in this manual, according to whether nurses render a psychiatric service or a general nursing service. Unfortunately at this stage the model was not able to provide precise details of nurse staff categories, for example ratios of enrolled nurses to professional nurses. The South African Nursing Council is in the process of developing norms using an accreditation system. In the interim, details of the implications of the norms in this manual need to be worked out according to available local nursing resources and needs.

In the next table you can enter the number of FTE mental health workers in your district, region or province. Then you can calculate the staff/population ratio (your indicator) and compare this with the national norm for each staff category.

How many FTE mental health staff are there in your district, region or province?

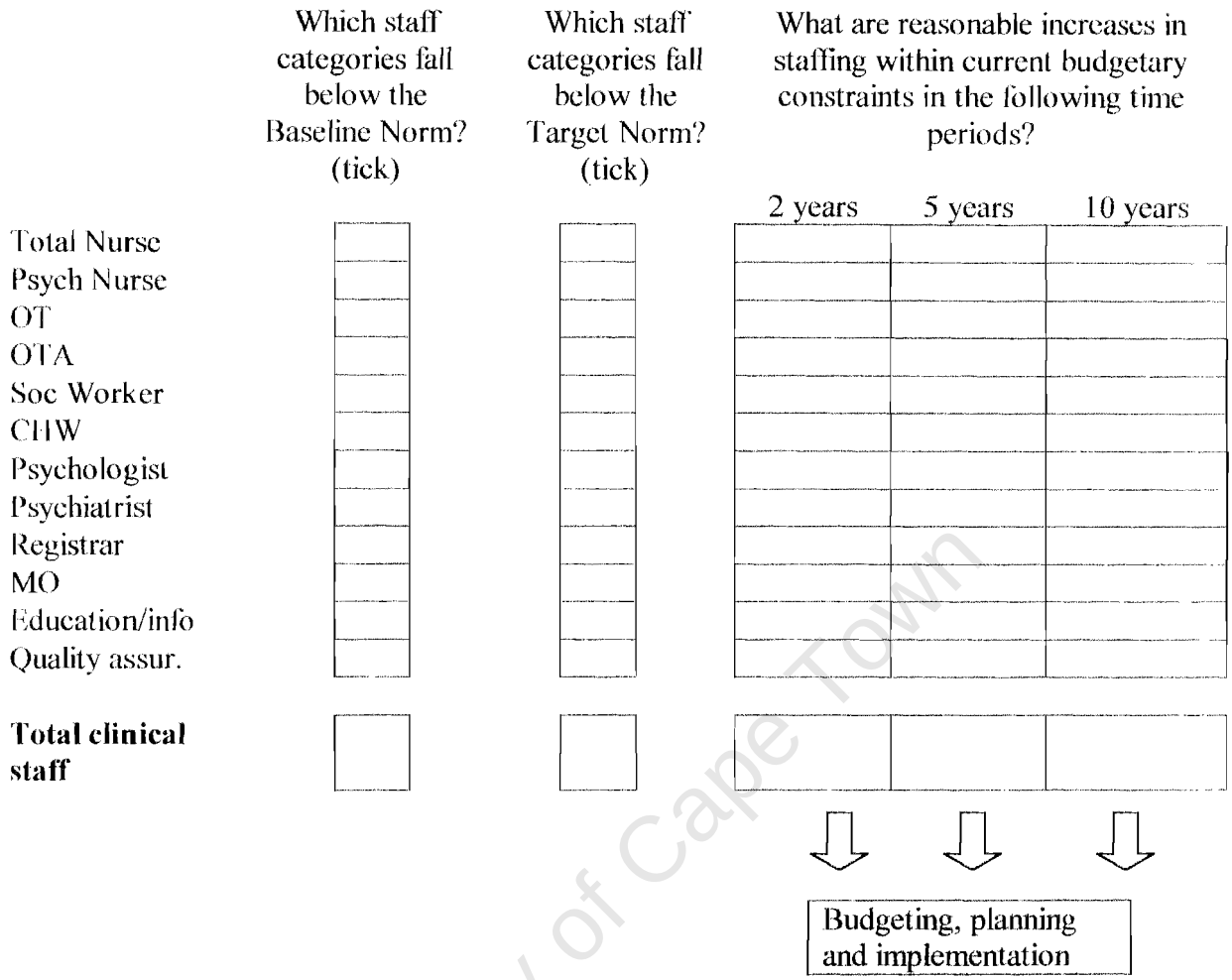
What is the population of your district, region or province?

This is your indicator, which you can compare with the national baseline and target norms

Calculating indicators and setting service objectives
Staff/population ratios per 100 000

Profession	FTE			Population		Staff/pop ratio	Baseline Norm	Target Norm
Total Nurse		×	100 000	÷		=	16	25.1
Psych Nurse*		×	100 000	÷		=	(8)	(12.5)
OT		×	100 000	÷		=	0.4	0.6
OTA		×	100 000	÷		=	0.9	1.9
Soc Worker		×	100 000	÷		=	0.7	2.2
CHW		×	100 000	÷		=	0.7	n/a
Psychol-ogist		×	100 000	÷		=	0.3	1.2
Psychiatrist		×	100 000	÷		=	0.3	1.55
Registrar		×	100 000	÷		=	0.4	1.95
MO		×	100 000	÷		=	0.4	N/a
Education/ Info officer		×	100 000	÷		=	N/a	0.5
Quality assurance		×	100 000	÷		=	N/a	0.2
Total clinical staff		×	100 000	÷		=	20.1	35.2

* The figure for psychiatric nurses is included in the figure for "total nurses".



Staff/bed Norms

Staff/bed norms allow you to make a more specific assessment of the number of staff available per inpatient bed. As with bed/population and staff/population norms, they do not tell the whole story, but must be reported alongside other norms, and information about the quality of care which is delivered (standards).

The same staff categories are used for staff/bed norms as for staff/population norms. And once again the principle of calculating staff according to Full-Time Equivalents (FTE) is used.

In the following table you can enter the number of FTE mental health staff in inpatient mental health services in your district, region or province. Then you can calculate the staff/bed ratio (your indicator) and compare this with the national norm for each staff category.

How many inpatient FTE mental health staff are there in your district, region or province?

3.2 Calculating indicators and setting service objectives: Staff/bed ratio

How many psychiatric beds are there in your district, region or province?

This is your indicator, which you can compare with the national baseline and target norms

Profession	FTE		Beds		Staff/bed ratio	Baseline Norm	Target Norm
Total Nurse		÷		=		0.25	0.45
Psych Nurse		÷		=		0.12	0.21
OT		÷		=		0.01	0.01
OTA		÷		=		0.02	0.04
Soc Worker		÷		=		0.01	0.03
Psychologist		÷		=		0.01	0.02
Psychiatrist		÷		=		0.01	0.03
Registrar		÷		=		0.01	0.02
MO		÷		=		0.01	0.02
Total clinical staff		÷		=		0.36	0.56

	Which staff categories fall below the Baseline Norm? (tick)	Which staff categories fall below the Target Norm? (tick)	What are reasonable increases in staffing within current budgetary constraints in the following time periods?		
			2 years	5 years	10 years
Total Nurse					
Psych Nurse					
OT					
OTA					
Soc Worker					
CHW					
Psychologist					
Psychiatrist					
Registrar					
MO					
Total clinical staff					

Budgeting, planning and implementation

Staff/DPV Norms

DPV = Daily Patient Visits, i.e., the number of outpatients who use the service on an average working day.

Staff/DPV norms allow for specific monitoring of staffing in outpatient or ambulatory care settings. DPV = Daily Patient Visits, i.e., the number of outpatients who use the service on an average working day.

In order to calculate this ratio, we need information about ambulatory care staff, and the numbers of patients who use the service on a daily basis. Ambulatory care staff are once again counted using the principle of Full-Time Equivalents (FTE). DPV can be calculated using the average of the daily attendances. If only monthly figures are available, take the monthly attendance figures and divide them by the number of working days in the month.

In the following table (Table 3.3) you can enter the number of FTE mental health workers (including general health workers who provide mental health care) in outpatient mental health services in your district, region or province. Then enter the number of patients who use the service on an average day (DPV). From these you can calculate the staff/DPV ratio (your indicator) and compare this with the national norm for each staff category.

How many outpatient FTE mental health staff are there in your district, region or province?

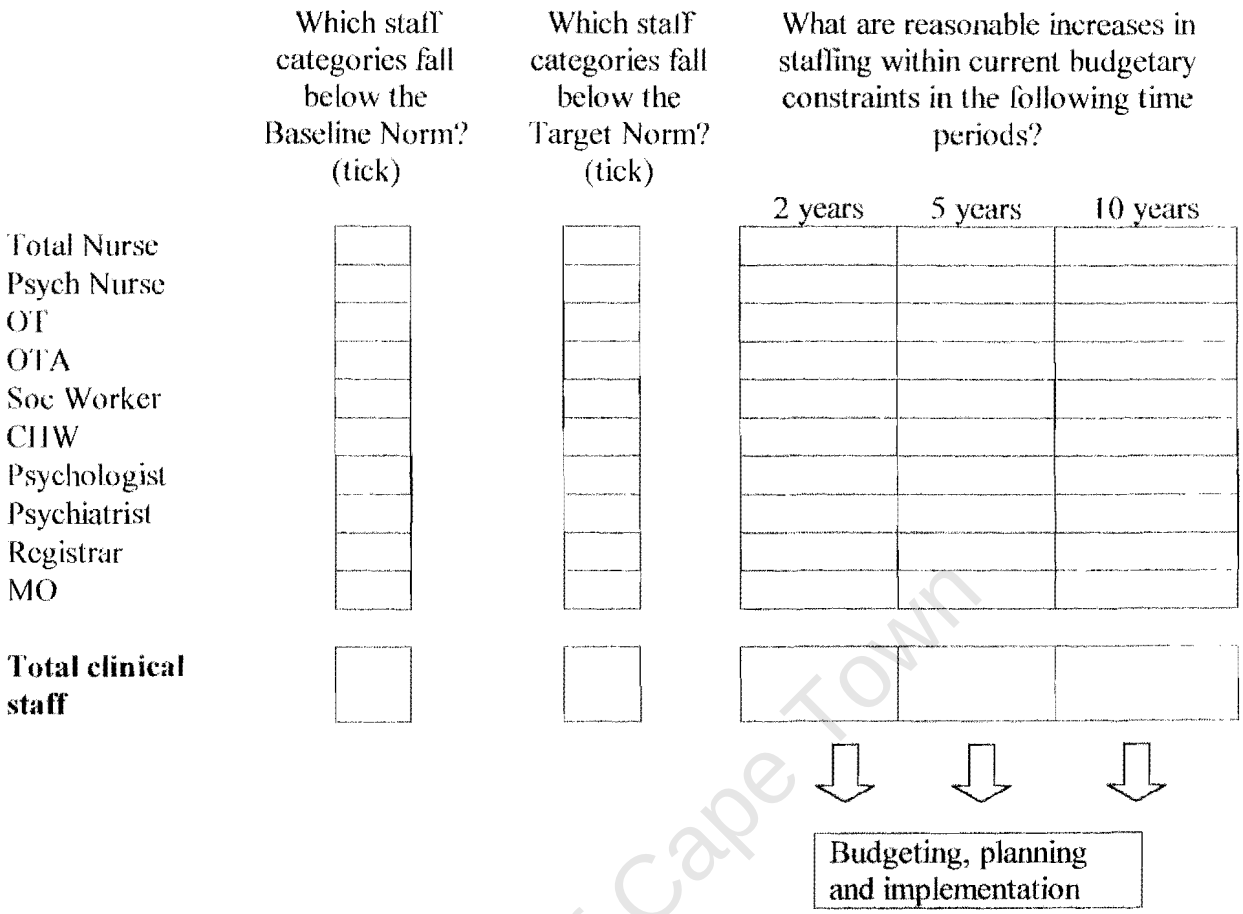
How many outpatients use the service on an average day in your district, region or province?

This is your indicator, which you can compare with the national baseline and target norms

3.3 Calculating indicators and setting service objectives: Staff/DPV ratios

Professio	FTE		DPV		Staff/DPV ratio	Baseline Norm	Target Norm
Total Nurse		÷		=		0.2	0.54
Psych Nurse*		÷		=		(0.1)	(0.27)
OT		÷		=		0.01	0.04
OTA		÷		=		0.01	0.11
Soc Worker		÷		=		0.01	0.08
CHW		÷		=		0.02	n/a
Psychol-ogist		÷		=		0.01	0.08
Psychiatrist		÷		=		0.01	0.02
Registrar		÷		=		0.01	0.03
MO		÷		=		0.02	0.03
Total clinical staff		÷		=		0.32	0.93

* Included in the ratio for total nurses.



Step 4: Community/Hospital Norms

Effective mental health services need to strike a balance between hospital and community-based care.

In the process of planning and managing a mental health service, it is essential to balance the needs of hospital and community services. Patients spend most of their lives in the community. It is therefore essential that they are managed carefully in community settings to prevent unnecessary relapse and overrunning of limited hospital services. At the same time hospital services need to have enough resources to prevent premature discharge of patients who cannot be managed in the community.

Community/ hospital norms are designed to monitor the balance between hospital and community-based care.

We therefore need norms to monitor the balance between hospital and community services – to ensure that if there are reductions in bed numbers, these resources are reallocated to community services. The failure to keep this balance has been seen as one of the major failings of deinstitutionalisation in other countries. For example, it has been stated:

> "A common criticism of the deinstitutionalisation effort in the US is that the dollars did not follow as patients left state hospitals for community settings".[xxi]

In order to monitor community and hospital services, we focus on two factors: staff and patients.

Community/hospital norms for staff

Community/ Hospital norms for staff are measured by dividing the number of community staff by the total staff.

Community/hospital norms for staff are measured by simply dividing the number of FTE staff working in community settings by the total FTE staff (community and hospital) working in the mental health service. This gives the proportion of staff working in community settings, as a percentage (see Table 4.1). This figure is useful in two ways:

- We can use it to compare provinces, regions or districts, in order to see which has a stronger emphasis on community or hospital services.
- We can use it to measure change in the service over time. For example if, as in the case of Mpumalanga, there is a need to increase the number of staff delivering care in hospital settings, then improvements in this situation can be measured through annual reporting of the community/hospital ratio for staff.

The Norms and Standards project uncovered some debate about exactly what "community" and "hospital" services are for staff. We therefore used two definitions to accommodate all parties:

Definition 1: Outpatient services (OPD) at hospitals are included as community services.[15]

Definition 2: Outpatient services (OPD) at hospitals are included as hospital services.[16]

Using both definitions is helpful because it enables a careful analysis of the distribution of staff between Hospital Inpatient facilities, Hospital OPDs and Clinics or Community Health Centres (CHCs) (see Table 4.1).

The Norms and Standards project found that provinces' community/hospital ratios were polarised. On the one hand, certain provinces with limited hospital services had extremely high community/hospital ratios, while on the other hand provinces with well developed hospital services and limited community services had low community/hospital ratios. For this reason, two Baseline Norms were proposed:

- A "Low Community" Baseline Norm aimed at those provinces who had well developed hospitals but under-developed community services (such as the Western Cape, Eastern Cape and KwaZulu-Natal). These provinces need to develop community services towards an achievable Baseline which serves as a stepping stone to the Target Norm.
- A "High Community" Norm aimed at those provinces who had under-developed hospital services (such as Mpumalanga and North West). These provinces need to develop hospital services towards an achievable Baseline which serves as a stepping stone to the Target Norm.

In both cases, the Target Norm, located between these two extremes, remains the same.

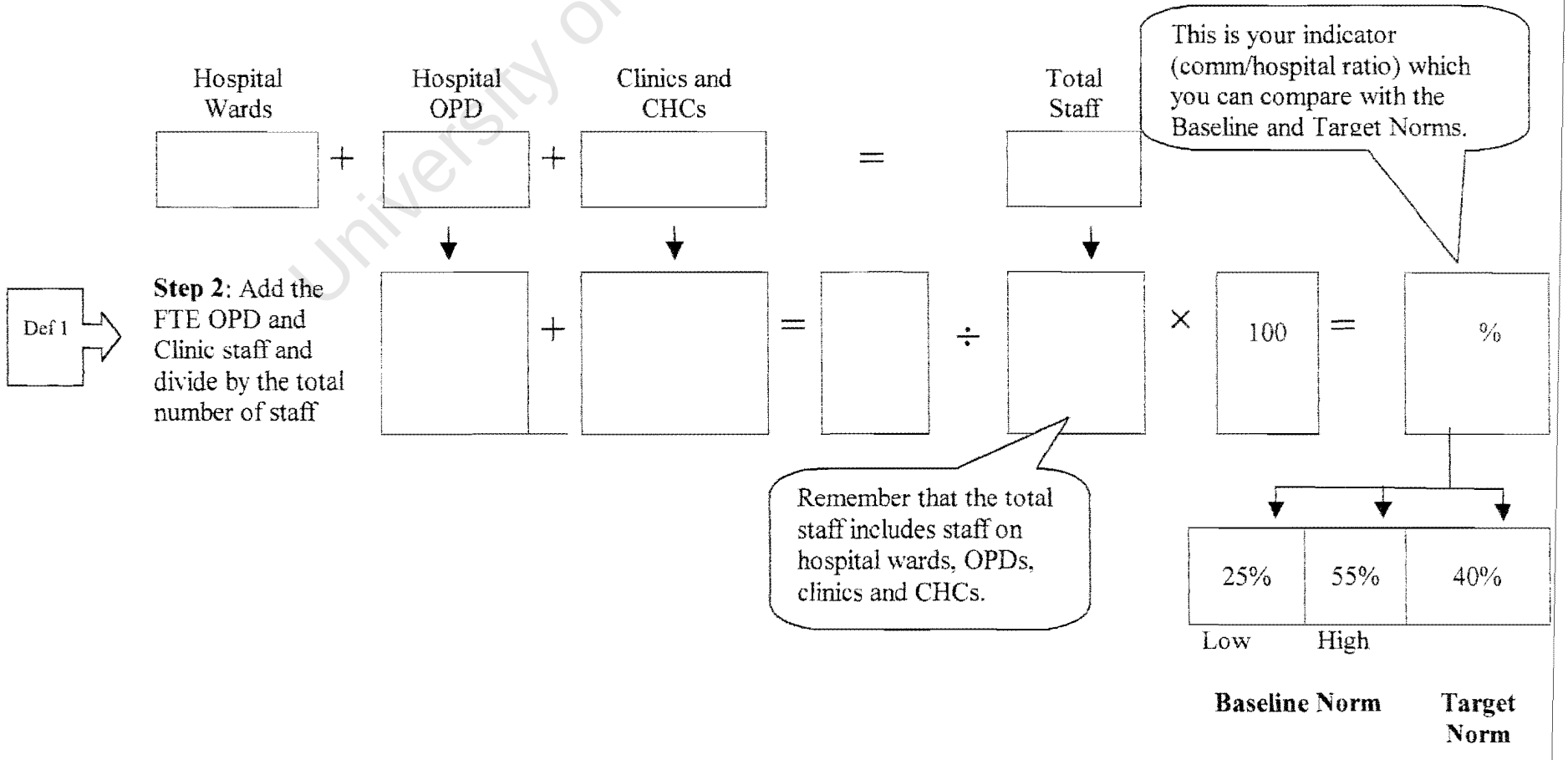
Table 3.4a and 3.4b on the next pages allow you to enter numbers of FTE staff in hospital inpatient, OPD, clinic and CHC settings. The table then assists in the calculation of community/hospital ratios for your district, region or province, which you can compare with the national Baseline and Target Norms. Remember that the Baseline norm is taken from the current average of South African services, and the Target norm is taken from the model in chapter 2.

[15] Those who supported this definition argued that OPDs should be seen as part of community services in order to monitor progress towards deinstitutionalisation. If this were not the case, reduction in bed numbers, and consequent treatment of patients in OPD would not be measurable.

[16] Those who supported this definition argued that it is unusual for community services to include hospital facilities of any kind, and that OPD staff are usually included on hospital establishments.

3.4a Calculating indicators and setting service objectives: Community/hospital norms for Staff

Step 1: How many FTE mental health staff are employed in each of the following settings in your province, region, or district?



3.4b Calculating indicators and setting service objectives: Community/hospital norms for Staff (continued)

Def 2

Step 3: Divide the number of Clinic and CHC staff by the Total Staff

Clinic and CHC staff		Total Staff		100	=		Baseline Norm Low	Baseline Norm High	Target Norm
	÷		×			%	15%	45%	30%

Step 4: If your indicators fall below the Low Baseline Norms (for definition 1 or 2), this indicates a need for the development of staff in community services in your province, region or district.
If your indicators fall above the High Baseline Norms (for definition 1 or 2), this indicates a need for the development of staff in hospital services in your province, region or district.

Community/hospital norms for patients

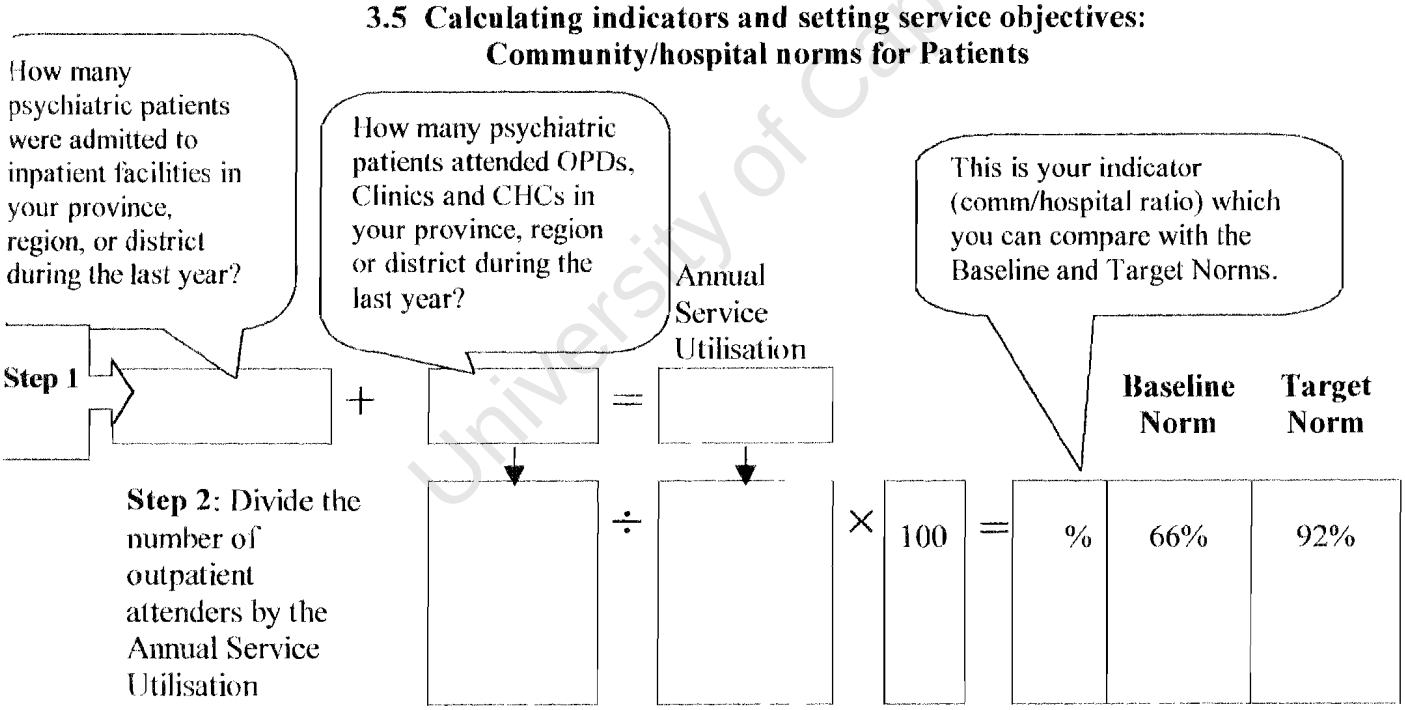
Community/ Hospital norms for patients are a way of monitoring how patients use the service.

Community/hospital norms for patients or service users are measured by monitoring the way in which patients use services. This can be done by counting the number of admissions in hospital services in a year and comparing this with the number of outpatient or ambulatory care attendances during a year (see Table 3.5). Once again this figure can be helpful in two ways:

- We can measure the way in which patients use services and compare this across provinces, regions or districts.
- We can measure change in the way patients use the services over time.

In table 3.5 you can enter the number of admissions in hospital services in a year and the number of outpatient attendances in a year and calculate the community/hospital ratio for patients – the indicator for your district, region or province. You can then compare this with the national Baseline and Target norms.

3.5 Calculating indicators and setting service objectives: Community/hospital norms for Patients



Step 3: If your indicator falls below the Baseline Norm, this indicates a need for the development of community services in your province, region or district. Low community service utilisation may be a consequence of poor detection of SPC patients; poor information systems which report patients' community service utilisation; or patients kept unnecessarily in long term custodial care.

Step 5: Process Norms

Up to this point we have worked with *input* norms – those norms which monitor the way in which resources are invested in the mental health service.

Process norms measure the way in which the service is delivered to the population.

However, it is also important to use *process* norms – those norms which monitor the way in which the mental health service is delivered to the community. In this manual we will focus on four process norms: bed occupancy, admission rates, average length of stay (ALOS), and default rates in ambulatory care.

5.1 Bed Occupancy Norms

Bed occupancy measures the average number of beds that are occupied, expressed as a percentage

Bed occupancy rates are a gross but essential measure of bed utilisation in hospitals. They measure the extent to which the available psychiatric beds are occupied at any given time.

In South Africa, there is an urgent need for the development of normative bed occupancy rates. Historically there has been little monitoring of bed occupancy in psychiatric institutions, and there have been significant infringements of patients' rights through overcrowding of these facilities.[xxii] Similarly in the UK, concern has been expressed that reduced bed numbers have led to unacceptably high bed occupancy rates in acute psychiatric units.[xxiii,xxiv]

As bed numbers in long stay custodial care institutions are reduced in South Africa, it is essential that bed occupancy rates are monitored. There is a need for a balance between the most effective use of limited hospital resources, and the protection of patients' rights to good quality care.

In the following tables (Table 3.6a and 3.6b) you can enter the average number of occupied beds for acute and medium-long stay care, and calculate the bed occupancy rate. This can then be compared with the Baseline and Target Norms.

The Hospital Strategy Project[viii] recommends the following formula for the calculation of bed occupancy: percentage bed occupancy = (inpatient days ÷ available bed days) × 100. *Inpatient days* per month are defined as the midnight count of patients for the month plus total deaths and discharges for the month. *Available bed days* are defined as the number of available beds multiplied by the time period specified (for example the number of days in the month). This formula is used in Tables 5.1a and 5.1b.

3.6a Calculating indicators and setting service objectives: Bed Occupancy rates for acute psychiatric care

Step 1: Calculating the existing service indicator

What is the average number of inpatient days per month in acute care in your district, region or province?

How many available acute psychiatric bed days per month are there in your district, region or province?

[ ] ÷ [ ] = [ ] × 100

= [ ] % This is your indicator (bed occupancy rate for acute psychiatric beds)

Step 2: Comparing the indicator with the norm

83%	85%
National Baseline Norm	National Target Norm

Does the indicator for your district, region or province fall below the Baseline norm? (tick) Yes [ ] No [ ]

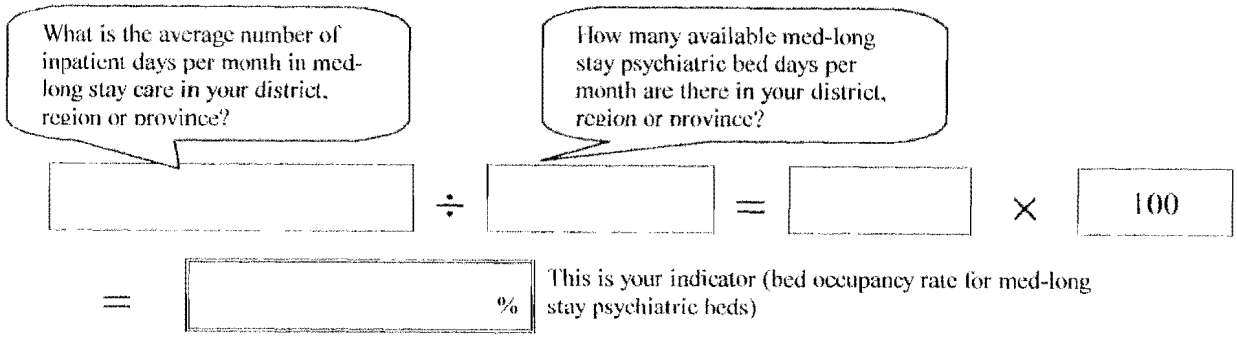
IF YES: It is possible to make more efficient use of your acute inpatient facilities by either increasing your admissions, increasing your ALOS or reducing the number of available beds. ⇨ Budgeting, planning and implementation

Does the indicator for your district, region or province fall above the Target norm? (tick) Yes [ ] No [ ]

IF YES: It is necessary to reduce levels of overcrowding in these facilities by either increasing the numbers of available beds, reducing admissions, reducing ALOS, or increasing community level staffing for more effective management of patients in the community. ⇨ Budgeting, planning and implementation

3.6b Calculating indicators and setting service objectives: Bed Occupancy rates for Medium-Long stay care

Step 1: Calculating the existing service indicator



Step 2: Comparing the indicator with the norm

83%	95%
National Baseline Norm	National Target Norm

Does the indicator for your district, region or province fall below the Baseline norm? (tick) Yes ☐ No ☐

IF YES: It is possible to make more efficient use of your med-long inpatient facilities by either increasing your admissions, increasing your ALOS or reducing the number of available beds. ⇨ Budgeting, planning and implementation

Does the indicator for your district, region or province fall above the Target norm? (tick) Yes ☐ No ☐

IF YES: It is necessary to reduce levels of overcrowding in these facilities by either increasing the numbers of available beds, reducing admissions, reducing ALOS, or increasing community level staffing for more effective management of patients in the community. ⇨ Budgeting, planning and implementation

5.2 Admission Rate Norms

Admission rates are an indicator of the rate at which patients are admitted to hospitals.

Admission rates are an important indicator of the rate at which patients are admitted to psychiatric inpatient facilities. They are an important supplement to information on the number of available beds in a particular community, because they provide a measure of how those beds are used. Sharp increases in admission rates are likely to indicate that deinstitutionalisation is proceeding too rapidly, and that patients are not being effectively managed in the community.

As with bed occupancy rate, an admission rate norm can help to ensure that the limited available resources are used in a way which is both cost-

effective and appropriate for the needs of patients with SPC.

Table 3.7 enables you to calculate admission rates for your particular district, region or province. It then facilitates comparison with the national Baseline and Target Norms. As a reminder, the baseline norm is based on the current national average. The target norm is adjusted down from the WHO model's estimated admission rate, following the recommendations of provincial mental health coordinators.

As with bed occupancy norms, indicators which fall significantly above or below the norm may be due to a range of factors. A careful, locally conducted situation analysis can provide details of adjustments which are needed.

3.7 Calculating indicators and setting service objectives: Admission rates

Step 1: Calculating the existing service indicator

How many psychiatric patients are admitted to hospitals in your district, region or province during a year?

What is the total population of your district, region or province?

[ ] ÷ [ ] = [ ] × 100 000

= [ ] This is your indicator (annual admission rate per 100 000 people)

Step 2: Comparing the indicator with the norm

150	180
National Baseline Norm	National Target Norm

Does the indicator for your district, region or province fall below the Baseline norm? (tick) Yes [ ] No [ ]

IF YES: It may be possible to increase your admission rate by improving access and referral routes to inpatient services, increasing the number of acute beds and reducing numbers of medium-long stay beds, or decreasing the ALOS. ⇨ Budgeting, planning and implementation

Does the indicator for your district, region or province fall above the Target norm? (tick) Yes [ ] No [ ]

IF YES: It may be possible to decrease your admission rate through more effective management of patients in community settings, reducing admissions from other provinces, or more effective short term management of patients in regional hospitals. ⇨ Budgeting, planning and implementation

5.3 Average Length of Stay (ALOS)

ALOS the average length of time (in days) that a patient spends in a hospital before discharge.

ALOS is the average length of time a patient spends in a hospital before discharge, and is usually measured in days. Alongside bed occupancy and admission rate, it is an extremely useful indicator of the way in which hospital services are used.

Reductions of the ALOS have been as much a feature of deinstitutionalisation as reduced bed numbers. During the last 30-40 years in developed countries, as patients have been managed more effectively in community settings, they have been admitted for shorter and shorter time periods. However, many studies[ii] have shown that these reductions should be planned carefully, that there remains a need for long term care for a small percentage of SPC patients, and that ALOS should depend on the particular clinical goals and treatment programmes of particular units.

Table 3.8 enables you to calculate the ALOS for acute and medium-long stay psychiatric inpatient care for your district, region or province. It is then possible to compare this indicator with the national Baseline and Target norms.

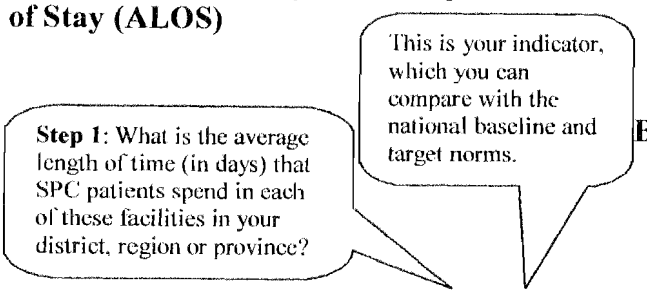
Because it is important to adapt ALOS to the specific setting in which patients are treated, the Norms and Standards report provided recommendations for a range of facilities:

- Psychiatric Hospitals (acute)
- Psychiatric Hospitals (med-long)
- General Hospitals (with dedicated psychiatric acute wards)
- General Hospitals (without dedicated psychiatric acute wards)
- District Hospitals (acute)

No Baseline ALOS was proposed for med-long stay care for several reasons: the data of existing services in the provinces was inadequate to draw clear conclusions; there was extreme diversity across the provinces; several provinces reported a cohort of patients who had remained in custodial care for many years, and who could not be humanely discharged by applying a blanket policy of reducing ALOS.

3.8 Calculating indicators and setting service objectives:

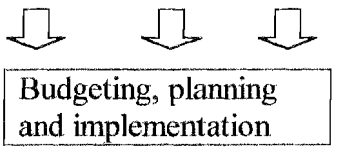
Average Length of Stay (ALOS)



Type of Facility		Baseline Norm	Target Norm
Psychiatric Hospitals (acute)		14	19
Psychiatric Hospitals (med-long)		-	180
General Hospitals (dedicated acute wards)		14	19
General Hospitals (non-dedicated acute wards)		5	8
District Hospitals (acute)		3	5

Step 2: If your ALOS for acute care falls below the Baseline Norm, this may be due to insufficient inpatient facilities (beds and staff), and the practices of prematurely discharging patients. It may also be due to inadequate community services to manage patients outside of hospital services.

Step 3: If your ALOS for acute care is above the Target Norm this may indicate that patients are being kept for too long in hospital settings and could be more effectively managed in the community.



5.4 Default Rate Norms

Patients who default from psychiatric care interfere with treatment programmes, disrupt efficient utilisation of staff time, and are costly to the mental health service. Problems of defaulting are widespread in community psychiatry, appear at varying stages, and present a constant challenge to the treatment team. They are particularly prevalent in patients with SPC.[ii]

Defaults can take a variety of forms – from missed appointments, to aftercare dropouts, to non-compliance with medication. In this manual we focus exclusively on missed appointments in outpatients (OPD), clinics and community health centres (CHC). Default rate is defined as the percentage of patients who miss appointments.

Default rates may be indicators of several factors:

- the extent to which patients receive the intended treatment
- wasteage of staff time
- inadequate referral procedures
- poor communication with patients

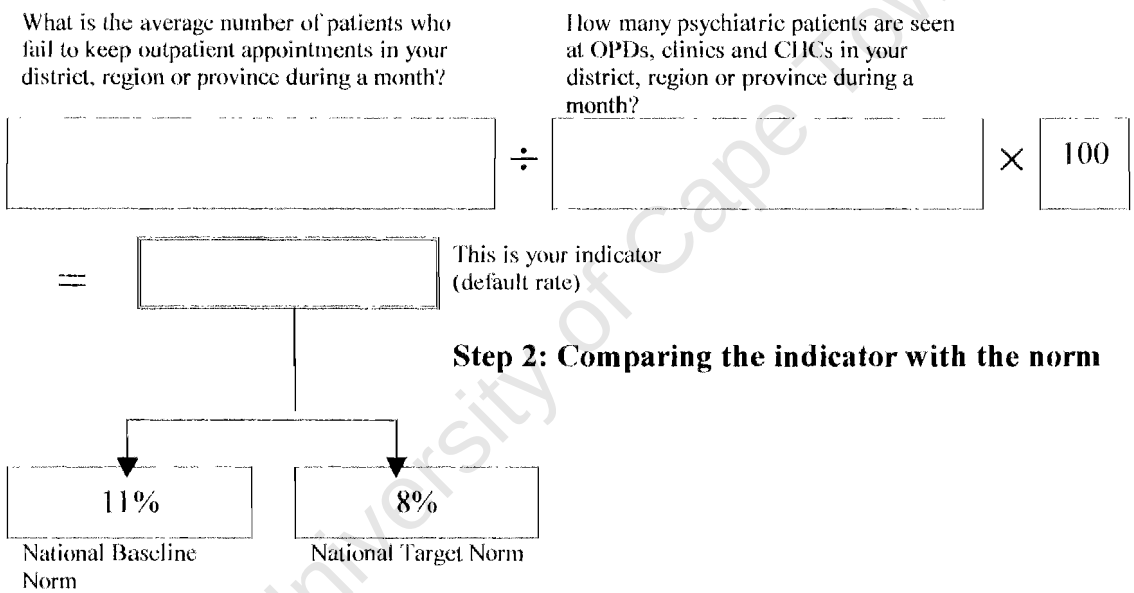
Researchers have argued that some default is inevitable, especially in treatment of acute patients and that defaulting does not always lead to readmission.[xxv] It is therefore useful to establish a norm which caters for an acceptable level of default which is not regarded as costly or a risk factor.

Some level of default is inevitable with SPC patients.

In Table 3.9 you can enter the numbers of missed appointments in OPDs, clinics or CHC's in your district, region or province and calculate the default rate. This can then be compared with the national Baseline and Target Norms. As the model does not recommend default rates, the Target norm was based on recommendations of the provincial mental health coordinators during the norms and standards project.

3.9 Calculating indicators and setting service objectives: Default rates

Step 1: Calculating the existing service indicator



Is the default rate for your district, region or province higher than the Baseline norm? (tick) Yes ☐ No ☐

IF YES: This may be due to poor communication with patients, inadequate referral routes, long waiting periods for patients or morale and stress problems among treatment staff. ⇨ Budgeting, planning and implementation

Is the default rate for your district, region or province lower than the Target norm? (tick) Yes ☐ No ☐

IF YES: A low default rate is usually an indicator of an effective service. However, this default should be continually reviewed to ensure that it is not due to poor information systems or under-reporting of defaults. ⇨ Budgeting, planning and implementation

Step 6: Maintaining the balance

Having reviewed the service using each norm, it is necessary, as a final step, to ensure that a balance is maintained between all aspects of the mental health services.

As a final step you can relate each of the indicators calculated in this manual, in order to monitor the service as a whole.

In Table 4 you can enter each of the indicators calculated in the tables so far. These can then be compared with the Baseline and Target Norms.

This table should provide a clear overview of the gaps in the service. It also shows the need to balance different aspects of the service, and that each aspect is dependent on others. For example, changes in bed numbers have effects on staffing, community/hospital ratios, bed occupancy, admission rates, ALOS and default rate. Conversely, changes in the average length of admission (ALOS) will have effects on the numbers of available beds, on admission rates, on community/hospital ratios, bed occupancy, staffing, the number of patients who are seen in ambulatory care settings, and in turn, default rates.

The norms in this manual are provisional and should be reviewed annually.

In order for the service to continue to function effectively it is essential that the service is monitored as a whole in an ongoing way.

At this stage the norms proposed in this manual are provisional and should be reviewed annually as services are transformed. Ultimately the norms framework needs to be modified according to the needs and priorities of local services, informed by appropriate budgeting, planning and implementation.

4. Maintaining the balance: Summary of service indicators and norms

Enter your indicators as calculated from the tables earlier in this chapter.

Norm	Definition	Indicators	Norms	
			Baseline	Target
Bed/population	(Beds ÷ total population) × 100 000		Acute: 13 Med-long + Comm res: 16	Acute: 28 Med-long + Comm res: 30
Staff/population (clinical staff only)	(Staff ÷ total population) × 100 000		Total nurses: 16 Total staff: 20.7	Total nurses: 25.1 Total staff: 35.2
Staff/bed (clinical staff only)	Staff ÷ beds		Total nurses: 0.25 Total staff: 0.36	Total nurses: 0.45 Total staff: 0.56
Staff/DPV (clinical staff only)	Staff ÷ DPV (Daily Patient Visits) (ambulatory care only)		Total nurses: 0.2 Total staff: 0.32	Total nurses: 0.54 Total staff: 0.93
Community/ Hospital	1. Community staff ÷ (hospital + comm staff) 2. Attendance rate ÷ (admission rate + attendance rate)		1. Ratio 1: 25%-55% Ratio 2: 15%-45% 2. 66%	1. Ratio 1: 40% Ratio 2: 30% 2. 92%
Bed occupancy	(Inpatient days ÷ Available bed days) × 100		Acute: 83% Med-long: 83%	Acute: 85% Med-long: 95%
Admission rates	Annual admissions per 100 000 population		150	180
Length of stay	Median length of admission (days)		Psychiatric hospitals (acute): 14 General hospitals (dedicate wards): 14 (non-dedicated wards): 5 District hospitals: 3	Psychiatric hospitals (acute): 19 (med-long): 180 General hospitals (dedicated wards): 19 (non-dedicated wards): 8 District hospitals: 5
Default rate	Defaulters ÷ Appointments		11%	8%

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